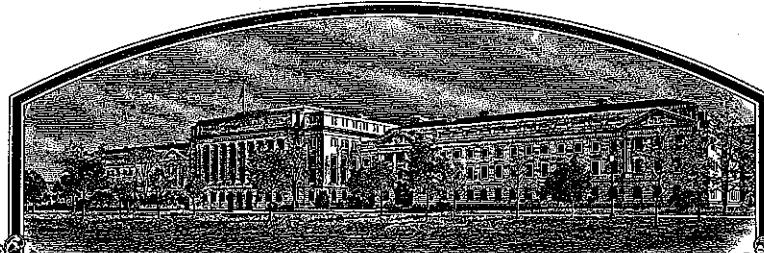


No.



THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:
Lebanon Seaboard Corporation and Rutgers University

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED DISTINCT VARIETY OF SEXUALLY REPRODUCED, OR TUBER PROPAGATED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF TWENTY YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC SUBMISSION OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE PURPOSES, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

FESCUE, TALL

'DaVinci'

In Testimony Whereof, I have hereunto set my hand
 and caused the seal of the Plant Variety
 Protection Office to be affixed at the City of
 Washington, D.C. this fifteenth day of April, in
 the year two thousand and eight.

Attest:

Commissioner
 Plant Variety Protection Office
 Agricultural Marketing Service

REPRODUCE LOCALLY. Include form number and date on all reproductions.

FORM APPROVED - OMB NO. 0581-00

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY DIVISION - PLANT VARIETY PROTECTION OFFICE

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE
(Instructions and information collection burden statement on reverse)

The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a) and the Paperwork Reduction Act (PRA) of 1995.

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF APPLICANT(S) (as it is to appear on the Certificate)

Lebanon Seaboard Corporation and
Rutgers University

4. ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP Code, and County)

P.O. Box 10
Huntsville, Utah 84317-0010

2. TEMPORARY DESIGNATION OR
EXPERIMENTAL NUMBER

LTP-7801

3. VARIETY NAME

DaVinci

6. TELEPHONE (Include area code)

503-580-7333

FOR OFFICIAL USE ONLY

PVPO NUMBER

200400284

6. FAX (Include area code)

801-745-4610

FILING DATE

7/30/04

7. GENUS AND SPECIES NAME

8. FAMILY NAME (Botanical)

Festuca arundinacea Schreb.

GRAMINEAE (POACEAE)

9. CROP KIND NAME (Common name)

Tall Fescue

10. IF THE APPLICANT NAMED IS NOT A "PERSON", GIVE FORM OF ORGANIZATION (corporation, partnership, association, etc.) (Common name)
Corporation

11. IF INCORPORATED, GIVE STATE OF INCORPORATION

Pennsylvania

12. DATE OF INCORPORATION

1949

FIING AND EXAMINATION FEE:

\$ 3652

DATE

7/30/04

13. NAME AND ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS

Tim Ford, Research Agronomist
P.O. Box 10
Huntsville, Utah 84317-0010

14. TELEPHONE (Include area code)

503-580-7333

15. FAX (Include area code)

801-745-4610

16. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED (Follow instructions on reverse)

- a. Exhibit A. Origin and Breeding History of the Variety
- b. Exhibit B. Statement of Distinctness
- c. Exhibit C. Objective Description of the Variety
- d. Exhibit D. Additional Description of the Variety (Optional)
- e. Exhibit E. Statement of the Basis of the Applicant's Ownership
- f. Voucher Sample (2,500 viable untreated seeds or, for tuber propagated varieties verification that tissue culture will be deposited and maintained in an approved public repository)
- g. Filing and Examination Fee (\$2,450), made payable to "Treasurer of the United States" (Mail to PVPO)

17. DOES THE APPLICANT SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY, AS A CLASS OF CERTIFIED SEED? (See Section 83(a) of the Plant Variety Protection Act)
 YES If "yes," answer items 18 and 19 below
 NO If "no," go to item 20

18. DOES THE APPLICANT SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS?

YES NO

19. IF "YES" TO ITEM 18, WHICH CLASSES OF PRODUCTION BEYOND BREEDER SEED?

FOUNDATION REGISTERED CERTIFIED

20. HAS THE VARIETY OR A HYBRID PRODUCED FROM THE VARIETY BEEN RELEASED, USED, OFFERED FOR SALE, OR MARKETED IN THE U.S. OR OTHER COUNTRIES?
 YES If "yes," give names of countries and dates
 NO

U S.A. Starting with the 2003 harvest, September 15, 2003

21. The applicant(s) declare that a viable sample of basic seed of the variety will be furnished with application and will be replenished upon request in accordance with such regulations as may be applicable, or for a tuber propagated variety a tissue culture will be deposited in a public repository and maintained for the duration of the certificate.

The undersigned applicant(s) is/are the owner(s) of this sexually reproduced or tuber propagated plant variety, and believe(s) that the variety is new, distinct, uniform, and stable as required in Section 42, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act.

Applicant(s) is/are informed that false representation herein can jeopardize protection and result in penalties.

SIGNATURE OF APPLICANT (Owner(s))

Tim Ford

SIGNATURE OF APPLICANT (Owner(s))

NAME (Please print or type)

Tim Ford

CAPACITY OR TITLE

Research Agronomist

DATE

07/26/2004

DATE

1.

#200400284

EXHIBIT A

Origin and Breeding History of DaVinci (LTP-7801) Tall Fescue

DaVinci (LTP-7801) tall fescue (*Festuca arundinacea* Schreb.) is a medium low-growing, dark green, medium-fine-leaved, turf-type tall fescue selected from the maternal progenies of 199 clones. DaVinci was selected for high shoot density in the crown, dark-green color, and semi-dwarf growth habit.

The 199 parents of DaVinci were selected from 27 maternal sources evaluated in progeny turf plots at the Rutgers Plant Science Research and Extension Farm at Adelphia, NJ from the 1998 and 1999 trials. Twenty-three percent traces to a few plants selected from a park in Lexington, KY in 1979. Seventeen percent traces to a few plants selected from a farm in North Carolina, 1975 and used in the development of Rebel II. Twelve percent traces to a plant identified as FD-1 and evaluated in turf plots in 1989. Eleven percent trace to a plant designated as RR-11F and evaluated in turf plots in 1988. Approximately eight percent traces to a few plants selected from or related to Gazelle. Approximately seven percent traces to a plant selected from the Princeton University campus and used in the development of Rebel. Another seven percent traces to a few plants selected from the University of GA State Hospital in 1977. Another six percent trace to plants selected from the University of Georgia, Athens, GA in 1977. Four percent trace to a plant selected from or related to Mini Mustang. Three percent trace to a plant identified as P89-25 and evaluated in turf plots in 1989. Two percent traces to a few plants selected from or related to SR 8400.

All of the parental germplasm sources of DaVinci tall fescue originate from plants selected from old turfs of the United States in a germplasm collection program initiated in 1962, to plants selected from or related to Rebel tall fescue (Funk et al., 1981). Attractive clones were selected from old turfs in Birmingham, AL; Athens, Atlanta, and Millegeville, GA; Preston, ID; Baltimore, MD; Bayonne, Jersey City, Elizabeth, Princeton, and Cape May, NJ; eastern North Carolina; Philadelphia, PA; Nashville, TN; Lexington, KY;

Cincinnati, OH; Dallas, TX; and northern Mississippi. The tall fescue plants selected from old turfs were of unknown origin. All were large patches of turf surviving in stressful environments indicating that they had persisted and developed over a period of many years.

A few hundred attractive, turf-type plants were collected and established in spaced-plant nurseries and/or frequently mowed clonal evaluation trials at Rutgers University. All but a few dozen of the most promising plants were quickly discarded. The best selections were very different from any tall fescue variety in existence at the time of collection. They produced lower-growing turfs with finer leaves, greater density, darker color, and greater tolerance of close mowing.

The most promising plants were identified by their persistence and appearance in old turfs and their performance in spaced-plant nurseries, mowed clonal evaluation tests, and single-plant progeny trials under turf maintenance. Intercrosses of the best performing plants were subjected to varying cycles of phenotypic and genotypic selection depending on their date of collection. New sources of germplasm were added to the breeding program as it became available from the continuing collection program. Each cycle of selection showed continued progress in producing lower-growing, darker green, attractive plants with improved turf performance scores. Selection was also effective in maintaining high seed yields, and good stress tolerance. Substantial progress was made in developing tall fescues with finer leaves, a lower growth profile, increased persistence under close mowing, and increased density.

Large numbers of single-plant progenies were seeded in turf evaluation trials at the Plant Science Research Farm at Adelphia, NJ in 1998 and 1999. The plants selected for progeny evaluation were selected from spaced-plant nurseries at Adelphia following varying cycles of phenotypic and genotypic selection of germplasm selected from old turfs and germplasm selected from or related to Rebel tall fescue.

Approximately, 2640 tillers were selected from the best performing single-plant progeny turf plots from the 1998 and 1999 tall fescue test at Adelphia. Twenty-seven different single-plot progenies were selected from 635 plots from 9 different populations from the 1998 test and 890 plots from 8 different populations from the 1999 test. These plants were established in greenhouse flats prior to their transfer to a spaced-plant nursery in the fall of 2000 consisting of 1320 plants. Selection was based on performance records as well as appearance at the time the plants were selected from these progeny plots. Selection of plants from each progeny was based on an attractive dark green color, medium-fine leaves, abundant tillering, high shoot density and freedom from disease.

In the spring of 2001, approximately 70% of the plants were rouged prior to anthesis, leaving a population of 392 plants with a semi-dwarf growth habit, dark green color, high crown densities and high seed yield potential. Approximately 50% of the remaining plants were harvested and designated as breeder seed of DaVinci (7801) tall fescue. These 199 plants were from 27 different single-plot progenies. Replicated turf plots of DaVinci were established at Adelphia in the fall of 2001 and entered in the 2001 National Tall Fescue test to be tested throughout the country. Twelve pounds of breeder seed was sent to Lebanon Seaboard Corporation for Foundation and Certified seed increase.

References

1. Buckner, Robert C., Jerrell B. Powell, and Rod V. Frakes. 1979. Historical Development, in Buckner, Robert C., and Lowell P. Bush (editors) Tall Fescue. Agronomy Monograph 20. American Society of Agronomy, Crop Science Society of America, Soil Science Society of America, Inc., Publishers. Madison, Wisconsin pages 1-8.
2. Funk, C.R., R.E. Engel, W.K. Dickson, and R.H. Hurley. 1981. Registration of Rebel tall fescue. Crop Sci. 21:632.

#200400284

Diagram of Origin and Breeding History of DaVinci (LTP-7801) Tall Fescue

1. 1962 to 1998

Germplasm collection, evaluation, and genetic improvement.

2. 1998-1999

Planted single-plant progenies of plants selected from current cycles of population improvement programs in closely mowed turf trials at Adelphia and North Brunswick, NJ.

3. 2000

Selected 2640 plants from 27 of the best performing single-plant progeny turf plots planted in 1998 and 1999. In the fall of 2000, 1320 selected plants were established in an isolated spaced-plant nursery at Adelphia, NJ.

4. 2001

Approximately 70% of this nursery was rouged leaving a population of 392 plants with a semi-dwarf growth habit, dark green color, high crown densities and high seed yield potential. Approximately 50% of the remaining plants were not harvested due to poor floret fertility and/or disease susceptibility. Seed from the selected 199 plants was harvested as breeder seed of DaVinci (7801) tall fescue. Replicated turf plots of DaVinci were established at Adelphia in the fall of 2001 and entered in the 2001 National Tall Fescue test to be tested throughout the country. Twelve pounds of breeder seed was sent to Lebanon Seaboard Corporation for Foundation and Certified seed increase.

#200400284

ADDENDUM TO EXHIBIT A

I have observed DaVinci tall fescue through 4 generations (Breeder, Foundation, Registered, and Certified) in seed production fields since 2001. I have found it to be extremely stable and uniform in seed production fields and the breeder block. I have not observed any aberrants or variants in seed production fields. Additionally, it has been entered in over 100 turf tests including the NTEP tall fescue test with numerous seed lots being used. DaVinci has been extremely uniform and stable in turf tests for the past seven years and I have not observed any aberrants or variants in mowed turf situations.

#200400284

EXHIBIT B

#200400284

STATEMENT OF DISTINCTNESS

DaVinci tall fescue is most similar both in turf plots and as a mature plant to Avenger tall fescue (tested as L1Z and Roberts L1Z).

DaVinci had a significantly later heading date than Avenger, both in 2002 and 2003 in a trial near Tangent, Oregon (see following data). DaVinci had a heading date of May 12, 2002 and May 2, 2003 (131.5 and 121.7 Julian, respectively). Avenger had a heading date of May 6, 2002 and April 23, 2003 (125.3 and 113.0 Julian, respectively). The LSD value at alpha = 0.05 was 2.49 and 2.51 days for 2002 and 2003, respectively.

DaVinci also had a significantly later anthesis date than Avenger in the same PVP trial near Tangent, Oregon (see following data). DaVinci had an anthesis date of June 6, 2002 and June 2, 2003 (156.2 and 151.9 Julian, respectively). Avenger had an anthesis date of June 3, 2002 and May 29, 2003 (153.5 and 148.7 Julian, respectively). The LSD value at alpha = 0.05 was 1.51 days and 1.66 days for 2002 and 2003, respectively.

Data File : 02TFPVP
Title : 2002 Tall Fescue

#200400284

Case Range : 97 - 128
Variable 5 : Heading Date
Function : RANGE

Error Mean Square = 2.319
Error Degrees of Freedom = 62
No. of observations to calculate a mean = 3

Least Significant Difference Test
LSD value = 2.485 at alpha = 0.050

	Original Order	Ranked Order	Line
Mean 1 =	130.0 ABCDE	Mean 29 = 132.2 A	SR 8200
Mean 2 =	131.2 ABC	Mean 12 = 131.5 AB	LTP-7801 ✓ May 12
Mean 3 =	128.9 CDEFG	Mean 2 = 131.2 ABC	BONSAI
Mean 4 =	130.1 ABCDE	Mean 21 = 130.6 ABCD	RENEGADE
Mean 5 =	127.1 FGHI	Mean 22 = 130.2 ABCDE	ROBERTS DOL ✓
Mean 6 =	129.8 ABCDE	Mean 16 = 130.2 ABCDE	PICK TF H-97
Mean 7 =	125.8 HIJ	Mean 4 = 130.1 ABCDE	CRENCUT
Mean 8 =	121.8 K	Mean 26 = 130.1 ABCDE	SHORTSTOP
Mean 9 =	128.0 EFGH	Mean 27 = 130.0 ABCDE	SILVERADO
Mean 10 =	128.3 DEFHG	Mean 14 = 130.0 ABCDE	MUSTANG 3
Mean 11 =	124.3 J	Mean 1 = 130.0 ABCDE	BONANZA
Mean 12 =	131.5 AB	Mean 32 = 129.9 ABCDE	WRANGLER
Mean 13 =	127.3 FGHI	Mean 17 = 129.9 ABCDE	PICK ZMG
Mean 14 =	130.0 ABCDE	Mean 6 = 129.8 ABCDE	DYNASTY
Mean 15 =	125.3 IJ	Mean 18 = 129.4 BCDEF	PICK 00-A FA
Mean 16 =	130.2 ABCDE	Mean 20 = 129.1 BCDEFG	REBEL II
Mean 17 =	129.9 ABCDE	Mean 3 = 128.9 CDEFG	CAYENNE
Mean 18 =	129.4 BCDEF	Mean 19 = 128.8 CDEFG	REBEL JR.
Mean 19 =	128.8 CDEFG	Mean 10 = 128.3 DEFHG	GRANDE II
Mean 20 =	129.1 BCDEFG	Mean 9 = 128.0 EFGH	GRANDE
Mean 21 =	130.6 ABCD	Mean 13 = 127.3 FGHI	MINI-MUSTANG
Mean 22 =	130.2 ABCDE	Mean 5 = 127.1 FGHI	CROSSFIRE II
Mean 23 =	125.3 IJ	Mean 30 = 126.8 GHI	TOMAHAWK
Mean 24 =	124.9 IJ	Mean 7 = 125.8 HIJ	FALCON
Mean 25 =	125.2 IJ	Mean 15 = 125.3 IJ	PICK 0D3
Mean 26 =	130.1 ABCDE	Mean 23 = 125.3 IJ	ROBERTS L1Z ✓ May 6
Mean 27 =	130.0 ABCDE	Mean 25 = 125.2 IJ	SHENADOAH II
Mean 28 =	118.9 L	Mean 24 = 124.9 IJ	ROBERTS SM4
Mean 29 =	132.2 A	Mean 11 = 124.3 J	KY-31
Mean 30 =	126.8 GHI	Mean 31 = 124.0 JK	WATCHDOG
Mean 31 =	124.0 JK	Mean 8 = 121.8 K	GA 98-D5
Mean 32 =	129.9 ABCDE	Mean 28 = 118.9 L	SOUTHEAST

May 2
April 30

Data File : 03TFPPV

#200400284

Title : 2003 Tall Fescue PVP trial - 2003 year data

Case Range : 97 - 128

Variable 4 : HEADING DATE (JULIAN)

Function : RANGE

Error Mean Square = 2.357

Error Degrees of Freedom = 62

No. of observations to calculate a mean = 3

Least Significant Difference Test

LSD value = 2.506 at alpha = 0.050

	Original Order	Ranked Order	LINE
Mean 1 =	119.0 BCDEF	Mean 14 = 122.0 A May 2	MUSTANG 3
Mean 2 =	121.7 A	Mean 12 = 121.7 A	LTP-7801 May 2 ✓
Mean 3 =	119.0 BCDEF	Mean 2 = 121.7 A	BONSAI
Mean 4 =	117.3 EFGHI	Mean 16 = 121.3 AB	PICK TF H-97
Mean 5 =	115.7 HI	Mean 6 = 121.3 AB	DYNASTY
Mean 6 =	121.3 AB	Mean 21 = 121.0 ABC	RENEGADE
Mean 7 =	112.3 KL	Mean 26 = 120.7 ABC	SHORTSTOP
Mean 8 =	108.3 M	Mean 19 = 120.0 ABCD	REBEL JR
Mean 9 =	117.7 DEFGH	Mean 29 = 120.0 ABCD	SR 8200
Mean 10 =	119.0 BCDEF	Mean 18 = 120.0 ABCD	PICK 00-A FA
Mean 11 =	110.0 LM	Mean 17 = 119.7 ABCDE	PICK ZMG
Mean 12 =	121.7 A	Mean 27 = 119.0 BCDEF	SILVERADO
Mean 13 =	118.0 DEFGH	Mean 3 = 119.0 BCDEF	CAYENNE
Mean 14 =	122.0 A	Mean 1 = 119.0 BCDEF	BONANZA
Mean 15 =	116.7 FGHI	Mean 10 = 119.0 BCDEF	GRANDE II
Mean 16 =	121.3 AB	Mean 22 = 118.7 CDEFG	ROBERTS DOL = Guardian 2/
Mean 17 =	119.7 ABCDE	Mean 13 = 118.0 DEFGH	MINI-MUSTANG
Mean 18 =	120.0 ABCD	Mean 9 = 117.7 DEFGH	GRANDE
Mean 19 =	120.0 ABCD	Mean 4 = 117.3 EFGHI	CREWCUT
Mean 20 =	117.0 FGHI	Mean 20 = 117.0 FGHI	REBEL II
Mean 21 =	121.0 ABC	Mean 15 = 116.7 FGHI	PICK OD3 = Blackwatch
Mean 22 =	118.7 CDEFG	Mean 32 = 116.3 GHI	WRANGLER
Mean 23 =	113.0 JK	Mean 25 = 116.0 HI	SHENADOAH II
Mean 24 =	115.0 IJ	Mean 5 = 115.7 HI	CROSSFIRE II
Mean 25 =	116.0 HI	Mean 24 = 115.0 IJ	ROBERTS SM4
Mean 26 =	120.7 ABC	Mean 23 = 113.0 JK	ROBERTS L1Z April 23 ✓ Avenger
Mean 27 =	119.0 BCDEF	Mean 31 = 113.0 JK	WATCHDOG
Mean 28 =	105.3 N	Mean 30 = 113.0 JK	TOMAHAWK
Mean 29 =	120.0 ABCD	Mean 7 = 112.3 KL	FALCON
Mean 30 =	113.0 JK	Mean 11 = 110.0 LM	KY-31
Mean 31 =	113.0 JK	Mean 8 = 108.3 M	GA 98-D5
Mean 32 =	116.3 GHI	Mean 28 = 105.3 N April 15	SOUTHEAST

Data File : 02TFPVP
Title : 2002 Tall Fescue

#200400284

Case Range : 97 - 128

Variable 4 : Anthesis date (Julian)

Function : RANGE

Error Mean Square = 0.8520

Error Degrees of Freedom = 62

No. of observations to calculate a mean = 3

Least Significant Difference Test
LSD value = 1.507 at alpha = 0.050

	Original Order	Ranked Order	Line
Mean 1 =	157.1 BC	Mean 27 = 159.0 A	Silverado
Mean 2 =	157.9 AB	Mean 4 = 158.6 A	Crewcut
Mean 3 =	154.9 EFGHI	Mean 2 = 157.9 AB	Bonsai
Mean 4 =	158.6 A	Mean 21 = 157.9 AB	Renegade
Mean 5 =	155.7 CDEF	Mean 29 = 157.8 AB	SR 8200
Mean 6 =	155.1 EFG	Mean 1 = 157.1 BC	Bonanza
Mean 7 =	154.4 FGHIJ	Mean 26 = 156.7 BCD	Shortstop
Mean 8 =	153.0 JKL	Mean 16 = 156.2 CDE	Pick TF H-97
Mean 9 =	155.0 EFGH	Mean 12 = 156.2 CDE	LTP-7801 ✓ DaVinci June 6 th
Mean 10 =	154.4 FGHIJ	Mean 17 = 156.2 CDE	Pick ZMG
Mean 11 =	153.6 GHIJ	Mean 18 = 156.0 CDE	Pick 00-A FA
Mean 12 =	156.2 CDE	Mean 20 = 155.7 CDEF	Rebel II
Mean 13 =	155.6 DEF	Mean 5 = 155.7 CDEF	Crossfire II
Mean 14 =	155.4 DEF	Mean 13 = 155.6 DEF	Mini-Mustang
Mean 15 =	153.2 JK	Mean 22 = 155.4 DEF	Roberts DOL ✓
Mean 16 =	156.2 CDE	Mean 14 = 155.4 DEF	Mustang 3
Mean 17 =	156.2 CDE	Mean 32 = 155.4 DEF	Wrangler
Mean 18 =	156.0 CDE	Mean 30 = 155.2 DEF	Tomahawk
Mean 19 =	154.7 EFGHI	Mean 6 = 155.1 EFG	Dynasty
Mean 20 =	155.7 CDEF	Mean 9 = 155.0 EFGH	Grande
Mean 21 =	157.9 AB	Mean 3 = 154.9 EFGHI	Cayenne
Mean 22 =	155.4 DEF	Mean 19 = 154.7 EFGHI	Rebel Jr.
Mean 23 =	153.5 HIJ	Mean 25 = 154.5 FGHIJ	Shenandoah II
Mean 24 =	153.4 IJ	Mean 7 = 154.4 FGHIJ	Falcon
Mean 25 =	154.5 FGHIJ	Mean 10 = 154.4 FGHIJ	Grande II
Mean 26 =	156.7 BCD	Mean 11 = 153.6 GHIJ	KY-31
Mean 27 =	159.0 A	Mean 23 = 153.5 HIJ	Roberts L1Z ✓ Avenger June 3rd
Mean 28 =	151.6 L	Mean 24 = 153.4 IJ	Roberts SM4
Mean 29 =	157.8 AB	Mean 15 = 153.2 JK	Pick OD3
Mean 30 =	155.2 DEF	Mean 8 = 153.0 JKL	GA 98-D5
Mean 31 =	151.7 KL	Mean 31 = 151.7 KL	Watchdog
Mean 32 =	155.4 DEF	Mean 28 = 151.6 L	Southeast June 1st

2003 data

Data File : 03TFPVP

Title : 2003 Tall Fescue PVP trial - 2003 year data

Case Range : 97 - 128

Variable 5 : ANTHESIS DATE (JULIAN)

Function : RANGE

#200400284

WELLS

COPY

Error Mean Square = 1.034

Error Degrees of Freedom = 62

No. of observations to calculate a mean = 3

Least Significant Difference Test

LSD value = 1.660 at alpha = 0.050

	Original Order		Ranked Order	LINE
Mean	1 = 152.7 ABC		Mean 27 = 154.2 A	SILVERADO
Mean	2 = 153.3 ABC		Mean 21 = 153.4 AB	RENEGADE
Mean	3 = 151.6 CD		Mean 2 = 153.3 ABC	BONSAI
Mean	4 = 152.4 BC		Mean 19 = 152.8 ABC	REBEL JR
Mean	5 = 150.6 DE		Mean 13 = 152.8 ABC	MINI-MUSTANG
Mean	6 = 152.5 BC		Mean 1 = 152.7 ABC	BONANAZA
Mean	7 = 148.9 EFG		Mean 16 = 152.6 ABC	PICK UP H-97
Mean	8 = 146.0 IJ		Mean 26 = 152.6 ABC	SHORTSTOP
Mean	9 = 149.7 EF		Mean 6 = 152.5 BC	DYNASTY
Mean	10 = 150.5 DE		Mean 4 = 152.4 BC	CREWCUT
Mean	11 = 146.4 HI		Mean 18 = 152.4 BC	PICK 00-A FA
Mean	12 = 151.9 BCD		Mean 12 = 151.9 BCD	LTP-7801 ← DaVinci June 2nd
Mean	13 = 152.8 ABC		Mean 14 = 151.8 BCD	MUSTANG 3
Mean	14 = 151.8 BCD		Mean 29 = 151.8 BCD	SR 8200
Mean	15 = 149.6 EF		Mean 17 = 151.8 BCD	PICK ZMG
Mean	16 = 152.6 ABC		Mean 3 = 151.6 CD	CAYENNE
Mean	17 = 151.8 BCD		Mean 5 = 150.6 DE	CROSSFIRE II
Mean	18 = 152.4 BC		Mean 10 = 150.5 DE	GRANDE II
Mean	19 = 152.8 ABC		Mean 22 = 150.4 DEF?	DOL → Guarden 21
Mean	20 = 150.3 DEF		Mean 20 = 150.3 DEF	REBEL II
Mean	21 = 153.4 AB		Mean 32 = 149.9 EF	WRANGLER
Mean	22 = 150.4 DEF		Mean 9 = 149.7 EF	GRANDE
Mean	23 = 148.7 FG		Mean 15 = 149.6 EF	PICK OD3 = Black watch
Mean	24 = 149.4 EFG		Mean 24 = 149.4 EFG	SM4
Mean	25 = 149.4 EFG		Mean 25 = 149.4 EFG	SHENANDOAH II
Mean	26 = 152.6 ABC		Mean 7 = 148.9 EFG	FALCON
Mean	27 = 154.2 A		Mean 23 = 148.7 FG	L1Z ✓ ← Avenger May 29
Mean	28 = 144.6 J		Mean 30 = 147.8 GH	TOMAHAWK
Mean	29 = 151.8 BCD		Mean 11 = 146.4 HI	KY-31
Mean	30 = 147.8 GH		Mean 31 = 146.0 IJ	WATCHDOG
Mean	31 = 146.0 IJ		Mean 8 = 146.0 IJ	GA 98-D5
Mean	32 = 149.9 EF		Mean 28 = 144.6 J	SOUTHEAST

#200400284

EXHIBIT C

2003 data - Near Tangent, OR

EXHIBIT

(TALL & MEADOW FESCU)

U.S. DEPARTMENT OF AGRICULTURE
PLANT VARIETY PROTECTION OFFICE, AMS, USDA
NATIONAL AGRICULTURAL LIBRARY Bldg., Rm. 500
10301 BALTIMORE Blvd.
BELTSVILLE, MD 20705

OBJECTIVE DESCRIPTION OF VARIETY
TALL & MEADOW FESCU'S
(*Festuca spp.*)

RBD 3 reps - 10 plants/rep each

NAME OF APPLICANT(S)	TEMPORARY DESIGNATION	VARIETY NAME
Lebanon Seaboard Corporation and Rutgers University (bt: 11/07/2007)	LTP-7801	DaVinci
ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP Code)	FOR OFFICIAL USE ONLY	
P.O. Box 10 Huntsville, UT 84317-0010	PVPO NUMBER	
#200400284		

Place the appropriate number that describes the varietal characteristic of this variety in the boxes below. Use leading zeroes when necessary (e.g. 089). Characteristics described, including numerical measurements, should represent those that are typical for the variety. Measured data should be for SPACED PLANTS. Royal Horticultural Society or any recognized color fan may be used to determine plant colors. Characteristics marked with an asterisk* are characteristics which should be recorded.

* 1. SPECIES: (With comparison varieties, use varieties within the species of the application variety)

1 = *F. arundinacea* (Tall)

Turf Types

1 = Kentucky 31	2 = Rebel	3 = Olympic	4 = Bonanza	5 = Arid	6 = Rebel II
7 = Shortstop	8 = Silverado	9 = Rebel Jr.	10 = Mini Mustang	11 = Crewcut	12 = Bonsai

Forage Types

20 = Kentucky 31	21 = Martin	22 = Forager	23 = Mozark
24 = Kenhy	25 = AU Triumph	26 = Fawn	27 = Cajun

2 = *F. pratensis* (Meadow)

30 = Admira 31 = Beaumont 32 = Comtessa 33 = Ensign 34 = Trader

* 2. CYTOLOGY:

42 Chromosome Number

3. ADAPTATION: (0 = Not Tested; 1 = Not Adapted; 2 = Adapted)

2 Transition Zone 2 West 2 Northeast 2 Other (Specify): France

* 4. MATURITY: (Date First Headed, 10% of Panicle Emergence)

<u>7</u> Maturity Class	1 = Very early ()	2 = AU Triumph	3 = Early (Fawn)	4 = K31, Kenhy	5 = Medium (Rebel)
	6 = Bonanza	7 = Late (Silverado)	8 =	9 = Very late	

Date Headed May 2, 2002, May 2, 2003

Location Near Tangent, OR

Days earlier than _____

Maturity same as 12 Comparison Variety Bonsai

Days later than 10 days later than Avenger

* 5. MATURE PLANT HEIGHT CM: (Average of 100 culms from crown to top of panicle, if panicle is nodding, straighten)

1 1 0.0 cm Height

2 0.2 cm shorter than 4 Bonanza

Height same as Mini-Mustang Comparison Variety

9.0 cm taller than Cayenne

* INTERNODE LENGTH CM:

(First internode subtending the flag leaf)

2 5.4 cm Internode length

2.8 cm shorter than Rebel Jr.

Length same as KY-31 1 Comparison variety and

1.4 cm longer than Crewcut (11) Avenger

* HEIGHT AT EAR EMERGENCE CM: (Flag leaf height from crown to flag leaf node)

3 2.5 cm Height 2002 data

2 6.5 cm shorter than 1 KY-31

Height same as Avenger Comparison Variety

4.2 cm taller than Guardian 21 (Roberts DOL)

* 6. GROWTH HABIT: (Mature Plants)

9 1 = Prostrate ()

7 = Semierect (Rebel)

3 = Semiprostrate ()

9 = Erect (Mini Mustang)

5 = Horizontal ()

* 7. RHIZOMES (Psuedo):

 mm Length 2 1 = Absent () 2 = Rare (Rebel) 3 = Common () Not Measured

* 8. LEAF BLADE: (Tiller leaves/ turf color)

* 5 Color: 1 = Light green () 3 = Medium light green () 5 = Green ()

7 = Medium dark green () 9 = Very dark green ()

Same as Rebel jr Specify rating of comparison variety

* 5 Anthocyanin: 1 = Absent () 9 = Present (X) to some degree

* 4 Basal Hairs: 1 = Absent () 9 = Present (X) to some degree

* 3 Margins: 1 = Smooth () 5 = Semi-rough (X) 9 = Rough ()

* 6 Width Class: * 1 = Very coarse () 3 = Coarse () 5 = Medium (X)

7 = Fine (X) 9 = Very Fine ()

* Medium based on Mature plant, fine based on NTEP data.
* TILLER LEAF LENGTH CM: (First leaf subtending the flag leaf)

* TILLER LEAF WIDTH MM:

2 5.9 cm Tiller Leaf Length

4.6 mm Tiller Leaf Width

5.0 cm shorter than Rebel jr.

1.0 mm narrower than Falcon

Length same as Grande Comparison Variety

Width same as Mustang 3 Comparison variety

3.7 cm longer than Tomahawk

0.3 mm wider than 12 Bonsai

8 LEAF/BLADE (continued)

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FLAG LEAF LENGTH CM:

1 6.7 cm Flag Leaf Length

FLAG LEAF WIDTH MM:

4.0 mm Flag Leaf Width6.1 cm shorter than 4 Bonanza1.1 mm narrower than 4 Bonanza

Length same as Avenger Comparison Variety

Width same as Rebel Jr. Comparison variety

1.5 cm longer than Watchdog0.4 mm wider than Avenger

* 9. LEAF SHEATH: (Basal Portion)

* 5 Anthocyanin (seedling): 1 = Absent (K31)9 = Present (X) a limited amount* 8 Auricle Hairiness: 1 = Absent ()9 = Present (X) a substantial amount

* 10. PANICLE: (At seed maturity except where noted.)

* 5 Shape: 1 = Narrow-tapering () 5 = Ovate (X) 7 = Oblong () 9 = Other (specify)* 5 Type: 1 = Compact (appressed) 5 = Intermediate (X) 7 = Open () 9 = Other (specify)* 5 Orientation: 1 = Nodding () 9 = Erect () Intermediate* 5 Branch Pubescence: 1 = Glabrous () 9 = Pubescent () Intermediate* 2 Anther Color (At anthesis): 1 = Yellowish Green 2 = Green 3 = Bluish Green
4 = Purplish 5 = Reddish 6 = Other (Specify) 45% Yellowish green
55% Green* 2 Glume Color (At anthesis): 1 = Yellowish Green 2 = Green 3 = Bluish Green
4 = Purplish 5 = Reddish 6 = Other (Specify)* 2 6.8 cm Panicle Length (from base to tip, if nodding, straighten; after anthesis)7.4 cm shorter than Falcon

Length same as Avenger Comparison Variety

2.7 cm longer than Cayenne

* 11. SEED: (With Lemma & Pelea)

* 2 0 1 7 mg per 1000 seeds5 2 0 mg less than Falcon

Weight same as Mini-Mustan Comparison Variety

3 2 7 mg more than TomahawkPALEA: (Keels or Margins) 1 Hairs: 1 = Absent () 5 = Short (Missouri 96) 9 = Long ()LEMMA: 1 Hairs: 1 = Absent (Kenhy) 5 = Several () 9 = Many (Missouri 96)— mm Lemma Length (Mature) Not measured — mm Lemma width Not Measured— mm shorter than — mm narrower than —Length same as — Comparison Variety Width same as — Comparison variety

10. PANICLE (continued)

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*AWNS: 9 AWNS: 1 = Absent () 9 = Present (Falcon) 100 % Plants with awns mm Awn length (Of those present.) Not measured

Casual observation in Production fields.

 mm Shorter than Length same as Comparison Variety mm Longer than

12. DISEASE, INSECT, AND NEMATODE REACTION: (0= Not Tested 1= Least Resistant 9= Most Resistant)

0 Melting-out *Drechslera poae*0 Blind Seed *Gloeotinia temulenta*0 Leaf Spot *D. siccans*0 Dollar Spot *Lanzia, Mollerdiscus* spp.0 Net Blotch *D. dictyoides*5 Stem Rust *Puccinia graminis* Observation in Production fields6 Brown Patch *Rhizoctonia solani* NTEP7 T. Blight *Typhula incarnata* NTEP0 C. Leaf Spot *Cercospora fectucae*9 Pythium Blight *Pythium* spp. NTEP0 Pink Snow Mold *Geotrichum nivalis*0 Powdery Mildew *Erysiphe graminis*0 Silver Top *F. tricinctum, F. roseum*0 Crown Rust *Puccinia coronata* Other Disease _____ Other Insect _____ Other Nematode _____

13. ENVIRONMENTAL STRESS

5 Drought Stress 1 = Susceptible () 5 = Tolerant (X) 9 = Resistant ()5 Shade Stress 1 = Susceptible () 5 = Tolerant (X) 9 = Resistant ()5 Winter Stress 1 = Susceptible () 5 = Tolerant (X) 9 = Resistant ()

14. GIVE VARIETY OR VARIETIES THAT MOST CLOSELY RESEMBLE THE APPLICATION VARIETY. For the following characteristics, indicate the degree of resemblance with the following scale:

1 = Application variety is less than comparison variety 2 = Same as 3 = More than, better, greater, darker, etc.

Character	Varieties	Rating	Character	Varieties	Rating
Leaf Width	Avenger	2	Leaf Color	Coyote Avenger	2
Panicle Color	Avenger	2	Panicle Shape	Shortstop	2
Seed Size	Mini-Mustang Bonanza	2 1	Cold Injury	Avenger	2
Winter Color	Picasso	1	Heat	Avenger	2
Disease	Rembrandt Avenger	2 2			

* 15. EXPERIMENTAL: Give a brief summary of the experimental design utilized to collect the data used on this form. Cultural conditions, number of plants measured and plant spacing must be specified.

RBD, 3 reps of 10 plants each near Tangent, NC

#200400284

EXHIBIT D

ADDITIONAL DATA

#200400284

Table 1. Morphological traits of tall fescue cultivars measured 2003-2004 from greenhouse measurements at the research facility of Pickseed West, Inc., Albany, OR.

Line	1	2	3	4	5	6
Bonanza	5	1	5	2	6	8
Bonsai	5	1	5	2	8	8
Grande	3	1	5	2	7	7
Grande II	5	1	5	2	6	9
Kentucky 31	1	1	9	6	9	9
LTP-7801	6	1	4	3	5	8
Silverado	5	1	6	3	6	8

1 = Leaf blade - width class (1 = very coarse, 3 = coarse, 5 = medium, 7 = fine, 9 = very fine)

2 = Leaf blade - anthocyanin (1 = absent, 9 = present)

3 = Leaf blade - basal hairs (1 = absent, 9 = present)

4 = Leaf blade - margins (1 = absent, 5 = semi-rough, 9 = rough)

5 = Leaf sheath - anthocyanin (seedling) (basal portion) (1 = absent, 9 = present)

6 = Leaf blade - auricle hairiness (basal portion) (1 = absent, 9 = present)

2002 Tall Fescue PVP

An
Line

ABT: 11/3/2007

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Line (%)	Antler color %	Yellowish- Green 1	Green 2	Bluish- Green 3	Purple 4	Red 5	Other (Yellow) 6
Bonanza	23	38	0	0	0	0	39
Bonsai	16	38	0	1	0	0	45
Cayenne	5	27	0	0	0	0	68
Crewcut	31	29	0	0	0	0	40
Crossfire II	18	48	0	0	0	0	34
Dynasty	10	45	0	0	0	0	45
Falcon	16	26	0	0	0	0	58
GA 98-D5	9	25	0	0	0	0	66
Grande	0	41	0	0	0	0	59
Grande II	10	25	0	0	0	0	65
KY-31	7	20	0	0	0	0	73
LTP-7801	7	45	0	0	0	0	48 ✓
Mini-Mustang	17	39	0	1	0	0	43
Mustang 3	23	24	0	0	0	0	53
Pick OD3	18	15	0	0	0	0	68
Pick TF H-97	8	43	0	0	0	0	49
Pick ZMG	5	35	0	0	0	0	60
Pick 00-A FA	4	29	0	0	0	0	67
Rebel Jr.	6	26	0	0	0	0	68
Rebel II	16	42	0	1	0	0	39
Renegade	7	24	0	0	0	0	69
Roberts DOL	12	31	0	0	0	0	57
Roberts L1Z	16	10	0	0	0	0	74
Roberts SM4	17	14	0	0	0	0	69
Shenadoah II	9	37	0	0	0	0	54
Shortstop	12	39	0	0	0	0	49
Silverado	12	43	0	0	2	0	45
Southeast	13	1	0	0	0	0	86
SR 8200	20	32	0	0	0	0	48
Tomhawk	10	30	0	0	0	0	60
Watchdog	9	10	0	0	0	0	81
Wrangler	16	29	0	0	0	0	55

anther color

2003 Tall Fescue PUP
Anther color %

#200400284

Line	1 Yellowish-green	2 Green	3 Bluish-green	4 Purplish	5 Reddish	6 Other
Bonanza	72	28	0	0	0	0
Bonsai	81	13	0	6	0	0
Cayenne	86	14	0	0	0	0
Crewcut	81	19	0	0	0	0
Crossfire II	68	32	0	0	0	0
Dynasty	100	0	0	0	0	0
Falcon	85	15	0	0	0	0
GA 98-D5	86	14	0	0	0	0
Grande	92	5	0	3	0	0
Grande II	97	3	0	0	0	0
KY-31	79	7	0	14	0	0
(LTP-7801) Da Vinci <small>(ST: 11/27/07)</small>	45	55	0	0	0	0 ✓
Mini-Mustang	84	15	0	1	0	0
Mustang 3	90	10	0	0	0	0
Pick OD3	81	19	0	0	0	0
Pick TF H-97	82	18	0	0	0	0
Pick ZMG	84	16	0	0	0	0
Pick 00-A FA	88	12	0	0	0	0
Rebel Jr.	94	3	0	3	0	0
Rebel II	97	3	0	0	0	0
Renegade	97	0	0	3	0	0
Roberts DOL	90	4	0	6	0	0
Roberts L1Z	72	25	0	3	0	0
Roberts SM4	84	13	0	3	0	0
Shenadoah II	94	6	0	0	0	0
Shortstop	81	19	0	0	0	0
Silverado	100	0	0	0	0	0
Southeast	84	13	0	3	0	0
SR 8200	83	17	0	0	0	0
Tomhawk	97	3	0	0	0	0
Watchdog	89	7	0	4	0	0
Wrangler	97	3	0	0	0	0

#200400284

Data File : 02TFPVP
 Title : 2002 Tall Fescue

Case Range : 97 - 128
 Variable 11 : Glume color at anthesis
 Function : RANGE

Error Mean Square = 0.06900
 Error Degrees of Freedom = 62
 No. of observations to calculate a mean = 3

Least Significant Difference Test
 LSD value = 0.4287 at alpha = 0.050

	Original Order		Ranked Order		LINE
Mean	1 = 2.617	CDEFG	Mean	20 = 3.100	A
Mean	2 = 2.467	EFGH	Mean	23 = 3.067	AB
Mean	3 = 2.233	GH	Mean	30 = 3.067	AB
Mean	4 = 2.533	DEFGH	Mean	6 = 2.967	ABC
Mean	5 = 2.333	FGH	Mean	19 = 2.900	ABCD
Mean	6 = 2.967	ABC	Mean	31 = 2.833	ABCDE
Mean	7 = 2.567	CDEFGH	Mean	18 = 2.800	ABCDE
Mean	8 = 2.683	ABCDEF	Mean	32 = 2.767	ABCDE
Mean	9 = 2.683	ABCDEF	Mean	27 = 2.700	ABCDEF
Mean	10 = 2.567	CDEFGH	Mean	15 = 2.700	ABCDEF
Mean	11 = 2.150	H	Mean	14 = 2.700	ABCDEF
Mean	12 = 2.300	FGH	Mean	9 = 2.683	ABCDEF
Mean	13 = 2.467	EFGH	Mean	8 = 2.683	ABCDEF
Mean	14 = 2.700	ABCDEF	Mean	26 = 2.667	BCDEF
Mean	15 = 2.700	ABCDEF	Mean	1 = 2.617	CDEFG
Mean	16 = 2.450	EFGH	Mean	29 = 2.600	CDEFG
Mean	17 = 2.483	DEFGH	Mean	25 = 2.600	CDEFG
Mean	18 = 2.800	ABCDE	Mean	22 = 2.600	CDEFG
Mean	19 = 2.900	ABCD	Mean	7 = 2.567	CDEFGH
Mean	20 = 3.100	A	Mean	10 = 2.567	CDEFGH
Mean	21 = 2.467	EFGH	Mean	4 = 2.533	DEFGH
Mean	22 = 2.600	CDEFG	Mean	17 = 2.483	DEFGH
Mean	23 = 3.067	AB	Mean	21 = 2.467	EFGH
Mean	24 = 2.467	EFGH	Mean	24 = 2.467	EFGH
Mean	25 = 2.600	CDEFG	Mean	13 = 2.467	EFGH
Mean	26 = 2.667	BCDEF	Mean	2 = 2.467	EFGH
Mean	27 = 2.700	ABCDEF	Mean	16 = 2.450	EFGH
Mean	28 = 2.333	FGH	Mean	5 = 2.333	FGH
Mean	29 = 2.600	CDEFG	Mean	28 = 2.333	FGH
Mean	30 = 3.067	AB	Mean	12 = 2.300	FGH
Mean	31 = 2.833	ABCDE	Mean	3 = 2.233	GH
Mean	32 = 2.767	ABCDE	Mean	11 = 2.150	H

#200400284

Data File : 02TFPV

Title : 2002 Tall Fescue

Case Range : 97 - 128

Variable 9 : Foliage color-1=lt gr, 3=med lt gr, 5=gr, 7=med gr, 9=very dk gr

Function : RANGE

Error Mean Square = 0.4220

Error Degrees of Freedom = 62

No. of observations to calculate a mean = 3

Least Significant Difference Test

LSD value = 1.060 at alpha = 0.050

	Original Order		Ranked Order		LINE
Mean 1 =	3.667	IJK	Mean 15 =	6.333 A	PICK OD3
Mean 2 =	5.200	BCDEFG	Mean 14 =	6.103 AB	MUSTANG 3
Mean 3 =	5.493	ABCDEF	Mean 17 =	6.017 ABC	PICK ZMG
Mean 4 =	4.477	F GHI	Mean 22 =	6.010 ABC	ROBERTS DOL ✓
Mean 5 =	5.783	ABCD	Mean 5 =	5.783 ABCD	CORSSFIRE II
Mean 6 =	4.970	CDEFGH	Mean 10 =	5.753 ABCD	GRANDE II
Mean 7 =	2.943	K	Mean 24 =	5.713 ABCD	ROBERTS SM4
Mean 8 =	1.610	M	Mean 12 =	5.580 ABCDE	LTP-7801 ✓
Mean 9 =	4.127	H IJ	Mean 23 =	5.550 ABCDE	ROBERTS L1Z ✓
Mean 10 =	5.753	ABCD	Mean 16 =	5.523 ABCDEF	PICK TF H-97
Mean 11 =	1.117	M	Mean 25 =	5.493 ABCDEF	SHENADOAH II
Mean 12 =	5.580	ABCDE	Mean 3 =	5.493 ABCDEF	CAYENNE
Mean 13 =	5.000	CDEFGH	Mean 18 =	5.493 ABCDEF	PICK 00-A FA
Mean 14 =	6.103	AB	Mean 2 =	5.200 BCDEFG	BONSAI
Mean 15 =	6.333	A	Mean 13 =	5.000 CDEFGH	MINI-MUSTANG
Mean 16 =	5.523	ABCDEF	Mean 6 =	4.970 CDEFGH	DYNASTY
Mean 17 =	6.017	ABC	Mean 26 =	4.827 DEFGH	SHORTSTOP
Mean 18 =	5.493	ABCDEF	Mean 31 =	4.800 DEFGH	WATCHDOG
Mean 19 =	4.390	G H I J	Mean 21 =	4.537 EFGHI	RENEGADE
Mean 20 =	4.187	G H I J	Mean 4 =	4.477 FGHI	CREWCUT
Mean 21 =	4.537	EFGHI	Mean 19 =	4.390 GHIJ	REBEL Jr.
Mean 22 =	6.010	ABC	Mean 27 =	4.220 GHIJ	SILVERADO
Mean 23 =	5.550	ABCDE	Mean 29 =	4.207 GHIJ	SR 8200
Mean 24 =	5.713	ABCD	Mean 20 =	4.187 GHIJ	REBEL II
Mean 25 =	5.493	ABCDEF	Mean 9 =	4.127 HIJ	GRANDE
Mean 26 =	4.827	DEFGH	Mean 1 =	3.667 IJK	BONANZA
Mean 27 =	4.220	GHIJ	Mean 30 =	3.380 JK	TOMAHAWK
Mean 28 =	1.870	LM	Mean 7 =	2.943 K	FALCON
Mean 29 =	4.207	GHIJ	Mean 32 =	2.800 KL	WRANGLER
Mean 30 =	3.380	JK	Mean 28 =	1.870 LM	SOUTHEAST
Mean 31 =	4.800	DEFGH	Mean 8 =	1.610 M	GA 98-D5
Mean 32 =	2.800	KL	Mean 11 =	1.117 M	KY-31

Data File : 03TFPVP

Title : 2003 Tall Fescue PVP trial - 2003 year data

Case Range : 97 - 128

Variable 22 : Color-1=lt gr, 3=md gr, 5=gr, 7=med dk gr, 9=very dk gr

Function : RANGE

Error Mean Square = 0.3360

Error Degrees of Freedom = 62

No. of observations to calculate a mean = 3

Least Significant Difference Test

LSD value = 0.9461 at alpha = 0.050

	Original Order		Ranked Order		LINE
Mean 1 =	4.933 GHIJK		Mean 21 = 6.900 A		RENEGADE
Mean 2 =	5.400 DEFGHIJ		Mean 23 = 6.733 AB		L1Z ✓
Mean 3 =	4.340 KL		Mean 11 = 6.400 ABC		KY-31
Mean 4 =	5.367 DEFGHIJ		Mean 22 = 6.233 ABCD		DOL
Mean 5 =	5.600 CDEFGH		Mean 16 = 5.933 BCDE		TF H-97
Mean 6 =	2.667 NO		Mean 15 = 5.900 BCDBF		OD3
Mean 7 =	1.933 OP		Mean 17 = 5.800 BCDEPG		ZMG
Mean 8 =	3.933 LM		Mean 13 = 5.733 CDKFG		MINI-MUSTANG
Mean 9 =	5.333 DEFGHIJ		Mean 5 = 5.600 CDEFGH		CROSSFIRE II
Mean 10 =	1.067 PQ		Mean 14 = 5.567 CDEFGHI		MUSTANG 3 ✓
Mean 11 =	6.400 ABC		Mean 2 = 5.400 DEFGHIJ		BONSAI
Mean 12 =	4.133 KLM		Mean 4 = 5.367 DEFGHIJ		CREWCUT
Mean 13 =	5.733 CDEPG		Mean 9 = 5.333 DEFGHIJ		GRANDE
Mean 14 =	5.567 CDEFGHI		Mean 24 = 5.300 DEFGHIJ		SM4
Mean 15 =	5.900 BCDBF		Mean 20 = 5.033 EFGHIJK		REBEL II
Mean 16 =	5.933 BCDE		Mean 29 = 4.967 FGHIJK		SR 8200
Mean 17 =	5.800 BCDEPG		Mean 1 = 4.933 GHJK		BONANZA
Mean 18 =	3.967 LM		Mean 30 = 4.767 HIJKL		TOMAHAWK
Mean 19 =	4.133 KLM		Mean 26 = 4.633 IJKL		SHORTSTOP
Mean 20 =	5.033 EFGHIJK		Mean 25 = 4.567 JKL		SHENDOAH II
Mean 21 =	6.900 A		Mean 3 = 4.340 KL		CAYENNE
Mean 22 =	6.233 ABCD		Mean 28 = 4.233 KL		SOUTHEAST
Mean 23 =	6.733 AB		Mean 12 = 4.133 KLM		LTP-7801 ✓
Mean 24 =	5.300 DEFGHIJ		Mean 19 = 4.133 KLM		REBEL JR
Mean 25 =	4.567 JKL		Mean 18 = 3.967 LM		00-A FA
Mean 26 =	4.633 IJKL		Mean 8 = 3.933 LM		GA 98-D5
Mean 27 =	1.100 PQ		Mean 31 = 3.263 MN		WATCHDOG
Mean 28 =	4.233 KL		Mean 6 = 2.667 NO		DYNASTY
Mean 29 =	4.967 FGHIJK		Mean 7 = 1.933 OP		FALCON
Mean 30 =	4.767 HIJKL		Mean 27 = 1.100 PQ		SILVERADO
Mean 31 =	3.263 MN		Mean 10 = 1.067 PQ		GRANDE II
Mean 32 =	0.9465 Q		Mean 32 = 0.9465 Q		WRANGLER

#200400284

Data File : 02TFPPVP

Title : 2002 Tall Fescue

Case Range : 97 - 128

Variable 14 : Growth habit-1=prostrate, 3=semi-pr, 5=hor, 7=semi-erect, 9=erect

Function : RANGE

Error Mean Square = 0.3450

Error Degrees of Freedom = 62

No. of observations to calculate a mean = 3

Least Significant Difference Test

LSD value = 0.9587 at alpha = 0.050

	Original Order	Ranked Order	LINE
Mean 1 =	6.933 ABCDFF	Mean 22 = 7.700 A	ROBERTS DOL✓
Mean 2 =	7.000 ABCDE	Mean 27 = 7.667 A	SIVLERADO
Mean 3 =	7.533 AB	Mean 3 = 7.533 AB	CAYENNE
Mean 4 =	6.963 ABCDEF	Mean 16 = 7.533 AB	PICK TF H-97
Mean 5 =	7.500 ABC	Mean 5 = 7.500 ABC	CROSSFIRE II
Mean 6 =	6.667 BCDEFGH	Mean 12 = 7.467 ABC	LTP-7801✓
Mean 7 =	5.833 GHIJ	Mean 18 = 7.233 ABCD	PICK 00-A FA
Mean 8 =	6.033 FGHIJ	Mean 14 = 7.200 ABCD	MUSTANG 3
Mean 9 =	5.800 HIJ	Mean 25 = 7.067 ABCDE	SHENADOAH II
Mean 10 =	5.867 GHIJ	Mean 13 = 7.067 ABCDE	MINI-MUSTANG
Mean 11 =	5.167 J	Mean 23 = 7.000 ABCDE	ROBERTS L1Z✓
Mean 12 =	7.467 ABC	Mean 2 = 7.000 ABCDE	BONSAI
Mean 13 =	7.067 ABCDE	Mean 4 = 6.963 ABCDEF	CREWCUT
Mean 14 =	7.200 ABCD	Mean 1 = 6.933 ABCDEF	BONANZA
Mean 15 =	6.400 DEFGH	Mean 24 = 6.833 ABCDEF	ROBERTS SM4
Mean 16 =	7.533 AB	Mean 30 = 6.833 ABCDEF	TOMAHANK
Mean 17 =	6.567 CDEFGH	Mean 26 = 6.767 ABCDEFG	SHORTSTOP
Mean 18 =	7.233 ABCD	Mean 21 = 6.700 BCDEFGH	RENEGADE
Mean 19 =	6.133 EFGHI	Mean 6 = 6.667 BCDEFGH	DYNASTY
Mean 20 =	6.333 DEFGHI	Mean 32 = 6.603 BCDEFGH	WRANGLER
Mean 21 =	6.700 BCDEFGH	Mean 17 = 6.567 CDEFGH	PICK ZMG
Mean 22 =	7.700 A	Mean 15 = 6.400 DEFGH	PICK OD3
Mean 23 =	7.000 ABCDE	Mean 31 = 6.367 DEFGHI	WATCHDOG
Mean 24 =	6.833 ABCDEF	Mean 20 = 6.333 DEFGHI	REBEL II
Mean 25 =	7.067 ABCDE	Mean 19 = 6.133 EFGHI	REBEL Jr.
Mean 26 =	6.767 ABCDEFG	Mean 8 = 6.033 FGHIJ	GA 98-D5
Mean 27 =	7.667 A	Mean 29 = 5.867 GHIJ	SR 8200
Mean 28 =	5.433 IJ	Mean 10 = 5.867 GHIJ	GRANDE II
Mean 29 =	5.867 GHIJ	Mean 7 = 5.833 GHIJ	FALCON
Mean 30 =	6.833 ABCDEF	Mean 9 = 5.800 HIJ	GRANDE
Mean 31 =	6.367 DEFGHI	Mean 28 = 5.433 IJ	SOUTHEAST
Mean 32 =	6.603 BCDEFGH	Mean 11 = 5.167 J	KY-31

#200400284

Data File : 03TFPVP

Title : 2003 Tall Fescue PVP trial - 2003 year data

Case Range : 97 - 128

Variable 21 : Growth habit-1=prostrate, 3-semi-pros, 5=hor., 7=semi-erect, 9=erect
Function : RANGE

Error Mean Square = 0.05600

Error Degrees of Freedom = 62

No. of observations to calculate a mean = 3

Least Significant Difference Test

LSD value = 0.3862 at alpha = 0.050

Original Order

Ranked Order

LINE

Mean	1 =	8.857	A	Mean	17 =	9.000	A	PICK ZMG
Mean	2 =	8.740	AB	Mean	22 =	9.000	A	ROBERTS DOL
Mean	3 =	8.683	AB	Mean	21 =	9.000	A	RENEGADE
Mean	4 =	8.823	AB	Mean	28 =	9.000	A	SOUTHEAST
Mean	5 =	8.827	A	Mean	16 =	9.000	A	PICK TF H-97
Mean	6 =	7.030	D	Mean	12 =	8.943	A	LTP-7801 ✓
Mean	7 =	7.000	D	Mean	14 =	8.913	A	MUSTANG 3
Mean	8 =	8.767	AB	Mean	9 =	8.887	A	GRANDE
Mean	9 =	8.887	A	Mean	13 =	8.887	A	MINI-MUSTANG
Mean	10 =	7.000	D	Mean	15 =	8.873	A	PICK OD3
Mean	11 =	8.740	AB	Mean	1 =	8.857	A	BONANZA
Mean	12 =	8.943	A	Mean	5 =	8.827	A	CROSSFIRE II
Mean	13 =	8.887	A	Mean	4 =	8.823	AB	CREWCUT
Mean	14 =	8.913	A	Mean	18 =	8.797	AB	PICK OO-A FA
Mean	15 =	8.873	A	Mean	25 =	8.797	AB	SHENADOAH II
Mean	16 =	9.000	A	Mean	24 =	8.790	AB	SM4
Mean	17 =	9.000	A	Mean	23 =	8.787	AB	L1Z ✓
Mean	18 =	8.797	AB	Mean	8 =	8.767	AB	GA 98-D5
Mean	19 =	8.683	AB	Mean	11 =	8.740	AB	KY-31
Mean	20 =	8.647	AB	Mean	2 =	8.740	AB	BONSAI
Mean	21 =	9.000	A	Mean	29 =	8.737	AB	SR 8200
Mean	22 =	9.000	A	Mean	3 =	8.683	AB	CAYENNE
Mean	23 =	8.787	AB	Mean	19 =	8.683	AB	REBEL JR
Mean	24 =	8.790	AB	Mean	26 =	8.680	AB	SHORTSTOP
Mean	25 =	8.797	AB	Mean	20 =	8.647	AB	REBEL II
Mean	26 =	8.680	AB	Mean	30 =	8.440	BC	TOMAHAWK
Mean	27 =	7.000	D	Mean	31 =	8.060	C	WATCHDOG
Mean	28 =	9.000	A	Mean	6 =	7.030	D	DYNASTY
Mean	29 =	8.737	AB	Mean	27 =	7.000	D	SILVERADO
Mean	30 =	8.440	BC	Mean	10 =	7.000	D	GRANDE II
Mean	31 =	8.060	C	Mean	7 =	7.000	D	FALCON
Mean	32 =	0.3871	E	Mean	32 =	0.3871	E	WRANGLER

#200400284

Data File : 02TFPVP
 Title : 2002 Tall Fescue

Case Range : 97 - 128
 Variable 15 : Plant height (cm)
 Function : RANGE

Error Mean Square = 24.74
 Error Degrees of Freedom = 62
 No. of observations to calculate a mean = 3

Least Significant Difference Test
 LSD value = 8.117 at alpha = 0.050

	Original Order		Ranked Order		LINE
Mean	1 = 86.80	DEFG	Mean 28 = 110.5 A		SOUTHEAST
Mean	2 = 88.17	DE	Mean 11 = 108.9 A		KY-31
Mean	3 = 75.09	IJKLM	Mean 8 = 105.1 AB		GA 98-D5
Mean	4 = 79.23	FGHIJKL	Mean 7 = 98.59 BC		FALCON
Mean	5 = 83.10	DEFGHI	Mean 20 = 91.18 CD		REBEL II
Mean	6 = 81.25	EFGHIJK	Mean 2 = 88.17 DE		BONSAI
Mean	7 = 98.59	BC	Mean 30 = 87.07 DEF		TOMAHAWK
Mean	8 = 105.1	AB	Mean 1 = 86.80 DEFG		BONANZA
Mean	9 = 86.06	DEFGH	Mean 9 = 86.06 DEFGH		GRANDE
Mean	10 = 78.62	Hijkl	Mean 21 = 85.24 DEFGH		RENEGADE
Mean	11 = 108.9	A	Mean 32 = 85.03 DEFGH		WRANGLER
Mean	12 = 74.86	JKLM	Mean 14 = 83.38 DEFGH		MUSTANG 3 ✓
Mean	13 = 78.91	GHIJKL	Mean 5 = 83.10 DEFGHI		CROSSFIRE II
Mean	14 = 83.38	DEFGH	Mean 24 = 82.85 EFGHIJ		ROBERTS SM4
Mean	15 = 73.33	KLM	Mean 25 = 81.33 EFGHIJK		SHENADOAH II
Mean	16 = 73.22	KLM	Mean 6 = 81.25 EFGHIJK		DYNASTY
Mean	17 = 74.20	KLM	Mean 18 = 81.20 EFGHIJK		PICK 00-A FA
Mean	18 = 81.20	EFGHIJK	Mean 26 = 80.83 EFGHIJKL		SHORTSTOP
Mean	19 = 74.87	JKLM	Mean 29 = 79.80 EFGHIJKL		SR 8200
Mean	20 = 91.18	CD	Mean 4 = 79.23 EFGHIJKL		CREWCUT
Mean	21 = 85.24	DEFGH	Mean 13 = 78.91 GHIJKL		MINI-MUSTANG
Mean	22 = 67.63	M	Mean 10 = 78.62 HIJKL		GRANDE II
Mean	23 = 73.05	LM	Mean 3 = 75.09 IJKLM		CAYENNE
Mean	24 = 82.85	EFGHIJ	Mean 19 = 74.87 JKLM		REBEL JR
Mean	25 = 81.33	EFGHIJK	Mean 12 = 74.86 JKLM		LTP-7801 ✓
Mean	26 = 80.83	EFGHIJKL	Mean 17 = 74.20 KLM		PICK ZMG
Mean	27 = 73.22	KLM	Mean 31 = 74.05 KLM		WATCHEDOG
Mean	28 = 110.5	A	Mean 15 = 73.33 KLM		PICK OD3
Mean	29 = 79.80	FGHIJKL	Mean 16 = 73.22 KLM		PICK TF H-97
Mean	30 = 87.07	DEF	Mean 27 = 73.22 KLM		SILVERADO
Mean	31 = 74.05	KLM	Mean 23 = 73.05 LM		ROBERTS L1Z ✓
Mean	32 = 85.03	DEFGH	Mean 22 = 67.63 M		ROBERTS DOL = Guardian 21 ✓

#200400284

Data File : 03TFPV

Title : 2003 Tall Fescue PVP trial - 2003 year data

Case Range : 97 - 128

Variable 8 : PLANT HEIGHT (cm)

Function : RANGE

Error Mean Square = 75.73

Error Degrees of Freedom = 62

No. of observations to calculate a mean = 3

Least Significant Difference Test

LSD value = 14.20 at alpha = 0.050

	Original Order		Ranked Order		LINE
Mean	1 = 130.2	CDEF	Mean	28 = 147.5 A	SOUTHEAST
Mean	2 = 122.3	DEFGHI	Mean	11 = 144.9 AB	KY-31
Mean	3 = 101.0	L	Mean	7 = 140.9 ABC	FALCON
Mean	4 = 124.3	DEFG	Mean	20 = 139.7 ABC	REBEL II
Mean	5 = 112.4	GHIJKL	Mean	8 = 136.0 ABCD	GA 98-D5
Mean	6 = 115.1	GHIJKL	Mean	9 = 133.4 ABCDE	GRANDE
Mean	7 = 140.9 ABC		Mean	29 = 133.0 BCDE	SR 8200
Mean	8 = 136.0 ABCD		Mean	1 = 130.2 CDEF	BONANZA
Mean	9 = 133.4 ABCDE		Mean	4 = 124.3 DEFG	CREWCUT
Mean	10 = 116.1 FGHIJK		Mean	21 = 123.4 DEFGH	RENEGADE
Mean	11 = 144.9 AB		Mean	2 = 122.3 DEFGHI	BONSAI
Mean	12 = 110.0 HIJKL		Mean	30 = 120.2 EFGHIJ	TOMAHAWK
Mean	13 = 109.9 HIJKL		Mean	19 = 117.6 FGHIJK	REBEL JR
Mean	14 = 115.6 GHIJK		Mean	27 = 116.6 FGHIJK	SILVERADO
Mean	15 = 109.6 HIJKL		Mean	32 = 116.4 FGHIJK	WRANGLER
Mean	16 = 109.0 IJKL		Mean	10 = 116.1 FGHIJK	GRANDE II
Mean	17 = 111.3 GHIJKL		Mean	14 = 115.6 GHIJK	MUSTANG 3
Mean	18 = 113.0 GHIJKL		Mean	6 = 115.1 GHIJKL	DYNASTY
Mean	19 = 117.6 FGHIJK		Mean	26 = 114.6 GHIJKL	SHORTSTOP
Mean	20 = 139.7 ABC		Mean	18 = 113.0 GHIJKL	PICK 00-A FA
Mean	21 = 123.4 DEFGH		Mean	5 = 112.4 GHIJKL	CROSSFIRE II
Mean	22 = 106.9 JKL		Mean	23 = 112.0 GHIJKL	L1Z ✓
Mean	23 = 112.0 GHIJKL		Mean	17 = 111.3 GHIJKL	PICK ZMG
Mean	24 = 111.2 GHIJKL		Mean	24 = 111.2 GHIJKL	SM4
Mean	25 = 108.2 IJKL		Mean	12 = 110.0 GHIJKL	LTP-7801 ✓
Mean	26 = 114.6 GHIJKL		Mean	13 = 109.9 GHIJKL	MINI-MUSTANG
Mean	27 = 116.6 FGHIJK		Mean	15 = 109.6 GHIJKL	PICK OD3 = Blackwatch
Mean	28 = 147.5 A		Mean	16 = 109.0 IJKL	PICK TF H-97
Mean	29 = 133.0 BCDE		Mean	25 = 108.2 IJKL	SHENANDOAH II
Mean	30 = 120.2 EFGHIJ		Mean	22 = 106.9 JKL	DOL = Guardian 21
Mean	31 = 105.3 KL		Mean	31 = 105.3 KL	WATCHDOG
Mean	32 = 116.4 FGHIJK		Mean	3 = 101.0 L	CAYENNE

#200400284

ata File : 02TFPVP
 itle : 2002 Tall Fescue

ase Range : 97 - 128
 ariable 21 : Height at ear emergence(cm)
 unction : RANGE

rror Mean Square = 9.455
 rror Degrees of Freedom = 62
 o. of observations to calculate a mean = 3

east Significant Difference Test
 SD value = 5.019 at alpha = 0.050

	Original Order		Ranked Order		LINE
Mean	1 = 41.00	DEF	Mean	11 = 59.05 A	KY-31
Mean	2 = 43.31	CD	Mean	28 = 56.15 AB	SOUTHEAST
Mean	3 = 31.56	KLM	Mean	8 = 53.90 B	GA 98-D5
Mean	4 = 35.16	HJKL	Mean	7 = 47.12 C	FALCON
Mean	5 = 37.66	EFGHI	Mean	2 = 43.31 CD	BONSAI
Mean	6 = 37.14	EFGHIJ	Mean	20 = 43.22 CD	REBEL II
Mean	7 = 47.12	C	Mean	32 = 41.65 DE	WRANGLER
Mean	8 = 53.90	B	Mean	21 = 41.09 DEF	RENEGADE
Mean	9 = 40.15	DEFGH	Mean	1 = 41.00 DEF	BONANZA
Mean	10 = 34.21	IJKL	Mean	30 = 40.51 DEFG	TOMAHAWK
Mean	11 = 59.05	A	Mean	9 = 40.15 DEFGH	GRANDE
Mean	12 = 32.52	JKLM	Mean	5 = 37.66 EFGHI	CROSSFIRE II
Mean	13 = 36.39	FGHJK	Mean	6 = 37.14 EFGHIJ	DYNASTY
Mean	14 = 35.62	GHIJKL	Mean	13 = 36.39 FGHJK	MINI-MUSTANG
Mean	15 = 30.99	LM	Mean	29 = 36.27 FGHJK	SR 8200
Mean	16 = 31.05	LM	Mean	25 = 35.70 GHIJKL	SHENADOAH II
Mean	17 = 30.83	LM	Mean	18 = 35.69 GHIJKL	PICK 00-A FA
Mean	18 = 35.69	GHIJKL	Mean	14 = 35.62 GHIJKL	MUSTANG 3
Mean	19 = 33.88	IJKL	Mean	26 = 35.47 HIJKL	SHORTSTOP
Mean	20 = 43.22	CD	Mean	24 = 35.28 HIJKL	ROBERTS SM4
Mean	21 = 41.09	DEF	Mean	4 = 35.16 HIJKL	CREWCUT
Mean	22 = 28.30	M	Mean	10 = 34.21 IJKL	GRANDE II
Mean	23 = 32.26	JKLM	Mean	19 = 33.88 IJKL	REBEL JR
Mean	24 = 35.28	HJKL	Mean	31 = 33.81 IJKL	WATCHDOG
Mean	25 = 35.70	GHIJKL	Mean	27 = 32.74 IJKLM	SILVERADO
Mean	26 = 35.47	HJKL	Mean	12 = 32.52 JKLM	LTP-7801 ✓
Mean	27 = 32.74	IJKLM	Mean	23 = 32.26 JKLM	ROBERTS L1Z ✓
Mean	28 = 56.15	AB	Mean	3 = 31.56 KLM	CAYENNE
Mean	29 = 36.27	FGHJK	Mean	16 = 31.05 LM	PICK TF H-97
Mean	30 = 40.51	DEFG	Mean	15 = 30.99 LM	PICK OD3
Mean	31 = 33.81	IJKL	Mean	17 = 30.83 LM	PICK ZMG
Mean	32 = 41.65	DB	Mean	22 = 28.30 M	ROBERTS DOL✓

Data File : 02TFPVP
 Title : 2002 Tall Fescue

Case Range : 97 - 128
 Variable 22 : Internode length (cm)
 Function : RANGE

Error Mean Square = 2.438
 Error Degrees of Freedom = 62
 No. of observations to calculate a mean = 3

Least Significant Difference Test
 LSD value = 2.548 at alpha = 0.050

	Original Order		Ranked Order		LINE
Mean	1 = 15.06	BCDEF	Mean	8 = 21.59 A	GA 98-D5
Mean	2 = 15.73	BCD	Mean	11 = 21.30 A	KY-31
Mean	3 = 13.33	DEFGHIJ	Mean	28 = 20.82 A	SOUTHEAST
Mean	4 = 13.80	CDEFGHI	Mean	7 = 20.18 A	FALCON
Mean	5 = 14.20	CDEFGHI	Mean	20 = 16.75 B	REBEL II
Mean	6 = 14.48	BCDEFG	Mean	32 = 16.22 BC	WRANGLER
Mean	7 = 20.18	A	Mean	30 = 16.18 BC	TOMAHAWK
Mean	8 = 21.59	A	Mean	9 = 15.79 BCD	GRANDE
Mean	9 = 15.79	BCD	Mean	2 = 15.73 BCD	BONSAI
Mean	10 = 12.77	FGHIJ	Mean	21 = 15.61 BCDE	RENEGADE
Mean	11 = 21.30	A	Mean	1 = 15.06 BCDEF	BONANZA
Mean	12 = 13.06	FGHIJ	Mean	6 = 14.48 BCDEFG	DYNASTY
Mean	13 = 12.99	FGHIJ	Mean	14 = 14.38 BCDEFGH	MUSTANG 3
Mean	14 = 14.38	BCDEFGH	Mean	5 = 14.20 CDEFGHI	CROSSIRE II
Mean	15 = 11.10	J	Mean	26 = 14.06 CDEFGHI	SHORTSTOP
Mean	16 = 11.77	IJ	Mean	24 = 13.91 CDEFGHI	ROBERTS SM4
Mean	17 = 11.72	IJ	Mean	4 = 13.80 CDEFGHI	CREWCUT
Mean	18 = 13.71	CDEFGHI	Mean	18 = 13.71 CDEFGHI	PICK 00-A FA
Mean	19 = 12.24	GHIJ	Mean	3 = 13.33 DEFGHIJ	CAYENNE
Mean	20 = 16.75	B	Mean	25 = 13.13 EFGHIJ	SHENADOAH II
Mean	21 = 15.61	BCDE	Mean	27 = 13.11 EFGHIJ	SILVERADO
Mean	22 = 11.05	J	Mean	12 = 13.06 FGHIJ	LTP-7801 ✓
Mean	23 = 11.86	HIJ	Mean	29 = 13.06 FGHIJ	SR 8200
Mean	24 = 13.91	CDEFGHI	Mean	13 = 12.99 FGHIJ	MINI-MUSTANG
Mean	25 = 13.13	EFGHIJ	Mean	10 = 12.77 FGHIJ	GRANDE II
Mean	26 = 14.06	CDEFGHI	Mean	31 = 12.30 GHIJ	WATCHDOG
Mean	27 = 13.11	EFGHIJ	Mean	19 = 12.24 GHIJ	REBEL JR
Mean	28 = 20.82	A	Mean	23 = 11.86 HIJ	ROBERTS L1Z ✓
Mean	29 = 13.06	FGHIJ	Mean	16 = 11.77 IJ	PICK TF H-97
Mean	30 = 16.18	BC	Mean	17 = 11.72 IJ	PICK ZMG
Mean	31 = 12.30	GHIJ	Mean	15 = 11.10 J	PICK OD3
Mean	32 = 16.22	BC	Mean	22 = 11.05 J	ROBERTS DOL ✓

#200400284

Data File : .03TFPVP

Title : 2003 Tall Fescue PVP trial - 2003 year data

Case Range : 97 - 128

Variable 19 : Internode length (cm)

Function : RANGE

Error Mean Square = 5.941

Error Degrees of Freedom = 62

No. of observations to calculate a mean = 3

Least Significant Difference Test

LSD value = 3.978 at alpha = 0.050

	Original Order		Ranked Order		LINE
Mean	1 = 27.69	AB	Mean	8 = 28.66	A
Mean	2 = 25.89	ABC	Mean	19 = 28.13	A
Mean	3 = 27.41	AB	Mean	10 = 27.89	AB
Mean	4 = 24.00	BC	Mean	20 = 27.73	AB
Mean	5 = 26.44	ABC	Mean	1 = 27.69	AB
Mean	6 = 25.65	ABC	Mean	29 = 27.55	AB
Mean	7 = 26.77	ABC	Mean	3 = 27.41	AB
Mean	8 = 28.66	A	Mean	27 = 27.32	AB
Mean	9 = 25.36	ABC	Mean	17 = 26.98	AB
Mean	10 = 27.89	AB	Mean	26 = 26.91	AB
Mean	11 = 25.17	ABC	Mean	7 = 26.77	ABC
Mean	12 = 25.36	ABC	Mean	18 = 26.59	ABC
Mean	13 = 26.14	ABC	Mean	28 = 26.53	ABC
Mean	14 = 25.38	ABC	Mean	5 = 26.44	ABC
Mean	15 = 26.02	ABC	Mean	16 = 26.29	ABC
Mean	16 = 26.29	ABC	Mean	25 = 26.14	ABC
Mean	17 = 26.98	AB	Mean	13 = 26.14	ABC
Mean	18 = 26.59	ABC	Mean	15 = 26.02	ABC
Mean	19 = 28.13	A	Mean	24 = 25.92	ABC
Mean	20 = 27.73	AB	Mean	2 = 25.89	ABC
Mean	21 = 25.57	ABC	Mean	30 = 25.66	ABC
Mean	22 = 24.88	ABC	Mean	6 = 25.65	ABC
Mean	23 = 24.72	ABC	Mean	21 = 25.57	ABC
Mean	24 = 25.92	ABC	Mean	14 = 25.38	ABC
Mean	25 = 26.14	ABC	Mean	9 = 25.36	ABC
Mean	26 = 26.91	AB	Mean	12 = 25.36	ABC
Mean	27 = 27.32	AB	Mean	11 = 25.17	ABC
Mean	28 = 26.53	ABC	Mean	22 = 24.88	ABC
Mean	29 = 27.55	AB	Mean	23 = 24.72	ABC
Mean	30 = 25.66	ABC	Mean	4 = 24.00	BC
Mean	31 = 22.87	C	Mean	31 = 22.87	C
Mean	32 = 3.978	D	Mean	32 = 3.978	D

#200400284

Data File : 02TFPVP
 Title : 2002 Tall Fescue

Case Range : 97 - 128
 Variable 19 : Flag leaf length (cm)
 Function : RANGE

Error Mean Square = 1.807
 Error Degrees of Freedom = 62
 No. of observations to calculate a mean = 3

Least Significant Difference Test
 LSD value = 2.194 at alpha = 0.050

	Original Order		Ranked Order		LINE
Mean	1 = 15.30 ABC	Mean	28 = 16.74 A		SOUTHEAST
Mean	2 = 13.65 CDEFGH	Mean	7 = 15.99 AB		FALCON
Mean	3 = 10.74 KLM	Mean	11 = 15.93 AB		KY-31
Mean	4 = 11.17 JKLM	Mean	1 = 15.30 ABC		BONANZA
Mean	5 = 11.51 GHIJKLM	Mean	20 = 15.28 ABC		REBEL II
Mean	6 = 10.33 KLM	Mean	8 = 14.88 ABC		GA 98-D5
Mean	7 = 15.99 AB	Mean	29 = 14.21 BCD		SR 8200
Mean	8 = 14.88 ABC	Mean	9 = 13.91 BCDE		GRANDE
Mean	9 = 13.91 BCDE	Mean	21 = 13.88 BCDE		RENEGADE
Mean	10 = 13.69 CDEFG	Mean	19 = 13.81 BCDEF		REBEL JR
Mean	11 = 15.93 AB	Mean	10 = 13.69 CDEFG		GRANDE II
Mean	12 = 11.10 JKLM	Mean	2 = 13.65 CDEFGH		BONSAI
Mean	13 = 11.45 IJKLM	Mean	32 = 13.45 CDEFGHI		WRANGLER
Mean	14 = 11.79 EFGHIJKLMNOP	Mean	30 = 13.19 CDEFGHIJ		TOMAHAWK
Mean	15 = 11.49 HIJKLM	Mean	27 = 12.41 DEFGHIJK		SILVERDO
Mean	16 = 9.604 M	Mean	26 = 12.07 DEFGHIJK		SHORTSTOP
Mean	17 = 11.90 EFGHIJKL	Mean	18 = 12.04 DEFGHIJK		PICK 00-A FA
Mean	18 = 12.04 DEFGHIJK	Mean	24 = 11.91 EFGHIJKL		ROBERTS SM4
Mean	19 = 13.81 BCDEF	Mean	17 = 11.90 EFGHIJKL		PICK ZMG
Mean	20 = 15.28 ABC	Mean	14 = 11.79 EFGHIJKLM		MUSTANG 3
Mean	21 = 13.88 BCDE	Mean	25 = 11.67 FGHIJKLM		SHENADOAH II
Mean	22 = 10.48 KLM	Mean	5 = 11.51 GHijklm		CROSSFIRE II
Mean	23 = 10.43 KLM	Mean	15 = 11.49 HIJKLM		PICK OD3
Mean	24 = 11.91 EFGHIJKL	Mean	13 = 11.45 IJKLM		MINI-MUSTANG
Mean	25 = 11.67 FGHIJKLM	Mean	4 = 11.17 JKLM		CREWCUT
Mean	26 = 12.07 DEFGHIJK	Mean	12 = 11.10 JKLM		LTP-7801 ✓
Mean	27 = 12.41 DEFGHIJK	Mean	3 = 10.74 KLM		CAYENNE
Mean	28 = 16.74 A	Mean	22 = 10.48 KLM		ROBERTS DOL✓
Mean	29 = 14.21 BCD	Mean	23 = 10.43 KLM		ROBERTS L1Z ✓
Mean	30 = 13.19 CDEFGHIJ	Mean	6 = 10.33 KLM		DYNASTY
Mean	31 = 9.733 LM	Mean	31 = 9.733 LM		WATCHDOG
Mean	32 = 13.45 CDEFGHI	Mean	16 = 9.604 M		PICK TF H-97

#200400284

Data File : 03TFPPVP

Title : 2003 Tall Fescue PVP trial - 2003 year data

Case Range : 97 - 128

Variable 9 : FLAG LEAF LENGTH (cm)

Function : RANGE

Error Mean Square = 3.162

Error Degrees of Freedom = 62

No. of observations to calculate a mean = 3

Least Significant Difference Test

LSD value = 2.902 at alpha = 0.050

	Original Order		Ranked Order	LINE
Mean	1 = 22.78 AB		Mean 11 = 23.17 A	KY-31
Mean	2 = 20.16 BCDEFG		Mean 20 = 23.12 A	REBEL II
Mean	3 = 16.68 JK		Mean 1 = 22.78 AB	BONANZA
Mean	4 = 19.17 DEFGHIJ		Mean 27 = 22.24 ABC	SILVERADO
Mean	5 = 19.05 DEFGHIJ		Mean 28 = 21.75 ABCD	SOUTHEAST
Mean	6 = 16.55 JK		Mean 21 = 21.53 ABCDE	RENEGADE
Mean	7 = 20.44 ABCDEF		Mean 8 = 20.87 ABCDEF	GA 98-D5
Mean	8 = 20.87 ABCDEF		Mean 9 = 20.73 ABCDEF	GRANDE
Mean	9 = 20.73 ABCDEF		Mean 19 = 20.56 ABCDEF	REBEL JR
Mean	10 = 20.06 BCDEFGH		Mean 7 = 20.44 ABCDEF	FALCON
Mean	11 = 23.17 A		Mean 2 = 20.16 BCDEFG	BONSAI
Mean	12 = 16.67 JK		Mean 30 = 20.11 BCDEFG	TOMAHAWK
Mean	13 = 19.02 DEFGHIJ		Mean 10 = 20.06 BCDEFGH	GRANDE II
Mean	14 = 18.15 FGHIJ		Mean 29 = 19.81 CDEFGHI	SR 8200
Mean	15 = 17.29 GHIJK		Mean 4 = 19.17 DEFGHIJ	CREWCUT
Mean	16 = 15.20 K		Mean 26 = 19.05 DEFGHIJ	SHORTSTOP
Mean	17 = 18.73 EFGHIJ		Mean 5 = 19.05 DEFGHIJ	CROSSFIRE II
Mean	18 = 17.17 HIJK		Mean 13 = 19.02 DEFGHIJ	MINI-MUSTANG
Mean	19 = 20.56 ABCDEF		Mean 22 = 18.82 EFGHIJ	DOL
Mean	20 = 23.12 A		Mean 17 = 18.73 EFGHIJ	PICK ZMG
Mean	21 = 21.53 ABCDE		Mean 24 = 18.57 FGHIJ	SM4
Mean	22 = 18.82 EFGHIJ		Mean 32 = 18.25 FGHij	WRANGLER
Mean	23 = 17.00 IJK		Mean 14 = 18.15 FGHij	MUSTANG 3 ✓
Mean	24 = 18.57 FGHij		Mean 25 = 17.37 GHIJK	SHERANOAH II
Mean	25 = 17.37 GHIJK		Mean 15 = 17.29 GHIJK	PICK OD3
Mean	26 = 19.05 DEFGHIJ		Mean 18 = 17.17 HIJK	PICK OO-A FA
Mean	27 = 22.24 ABC		Mean 23 = 17.00 IJK	L1Z ✓
Mean	28 = 21.75 ABCD		Mean 3 = 16.68 JK	CAYENNE
Mean	29 = 19.81 CDEFGHI		Mean 12 = 16.67 JK	LTP-7801✓
Mean	30 = 20.11 BCDEFG		Mean 6 = 16.55 JK	DYNASTY
Mean	31 = 15.17 K		Mean 16 = 15.20 K	PICK TF H-97
Mean	32 = 18.25 FGHij		Mean 31 = 15.17 K	WATCHDOG

#200400284
2002 data

Data File : 02TFPVP
Title : 2002 Tall Fescue

Case Range : 97 - 128
Variable 17 : Flag leaf width (mm)
Function : RANGE

Error Mean Square = 0.1230
Error Degrees of Freedom = 62
No. of observations to calculate a mean = 3

Least Significant Difference Test
LSD value = 0.5724 at alpha = 0.050

	Original Order		Ranked Order		LINE
Mean	1 = 3.267 ABCD	Mean	11 = 3.417 A		KY-31
Mean	2 = 2.933 ABCDEFGH	Mean	28 = 3.400 AB		SOUTHEAST
Mean	3 = 2.933 ABCDFGH	Mean	29 = 3.317 ABC		SR 8200
Mean	4 = 2.717 DEFGH	Mean	1 = 3.267 ABCD		BONANZA
Mean	5 = 2.867 ABCDEF GH	Mean	24 = 3.250 ABCD		ROBERTS SM4
Mean	6 = 2.483 H	Mean	21 = 3.233 ABCD		RENEGADE
Mean	7 = 3.000 ABCDEFGH	Mean	17 = 3.217 ABCDE		PICK ZNG
Mean	8 = 3.067 ABCDEFG	Mean	19 = 3.183 ABCDEF		REBEL JR
Mean	9 = 2.933 ABCDEFGH	Mean	32 = 3.067 ABCDEFG		WRANGLER
Mean	10 = 2.817 CDEFGH	Mean	8 = 3.067 ABCDEFG		GA 98-D5
Mean	11 = 3.417 A	Mean	27 = 3.050 ABCDEFGH		SILVERADO
Mean	12 = 2.550 GH	Mean	20 = 3.017 ABCDEFGH		REBEL II
Mean	13 = 2.617 FGH	Mean	7 = 3.000 ABCDEFGH		FALCON
Mean	14 = 2.867 ABCDEFGH	Mean	30 = 2.983 ABCDEFGH		TOMAHAWK
Mean	15 = 2.833 BCDEFGH	Mean	25 = 2.950 ABCDEFGH		SHENADOAH II
Mean	16 = 2.550 GH	Mean	2 = 2.933 ABCDEFGH		BONSAI
Mean	17 = 3.217 ABCDE	Mean	3 = 2.933 ABCDEFGH		CAYENNE
Mean	18 = 2.650 EFGH	Mean	9 = 2.933 ABCDEFGH		GRANDE
Mean	19 = 3.183 ABCDEF	Mean	14 = 2.867 ABCDEFGH		MUSTANG 3
Mean	20 = 3.017 ABCDEFGH	Mean	5 = 2.867 ABCDEFGH		CROSSFIRE II
Mean	21 = 3.233 ABCD	Mean	15 = 2.833 BCDEFGH		PICK OD3
Mean	22 = 2.583 GH	Mean	10 = 2.817 CDEFGH		GRANDE II
Mean	23 = 2.800 CDEFGH	Mean	26 = 2.817 CDEFGH		SHORTSTOP
Mean	24 = 3.250 ABCD	Mean	23 = 2.800 CDEFGH		ROBERTS LIZ ✓ ← Avenger
Mean	25 = 2.950 ABCDEFGH	Mean	4 = 2.717 DEFGH		CREWCUT
Mean	26 = 2.817 CDEFGH	Mean	31 = 2.653 EFGH		WATCHDOG
Mean	27 = 3.050 ABCDEFGH	Mean	18 = 2.650 EFGH		PICK 00-A FA
Mean	28 = 3.400 AB	Mean	13 = 2.617 FGH		MINI-MUSTANG
Mean	29 = 3.317 ABC	Mean	22 = 2.583 GH		ROBERTS DOL ✓ = Guardian 2)
Mean	30 = 2.983 ABCDEFGH	Mean	12 = 2.550 GH		LTP-7801 ✓ ← DaVinci
Mean	31 = 2.653 EFGH	Mean	16 = 2.550 GH		PICK TF H-97
Mean	32 = 3.067 ABCDEFG	Mean	6 = 2.483 H		DYNASTY

#200400284

Data File : 03TFPVP

Title : 2003 Tall Fescue PVP trial - 2003 year data

Case Range : 97 - 128

Variable 10 : FLAG LEAF WIDTH (mm)

Function : RANGE

Error Mean Square = 0.1960

Error Degrees of Freedom = 62

No. of observations to calculate a mean = 3

Least Significant Difference Test

LSD value = 0.7226 at alpha = 0.050

	Original Order	Ranked Order	LINE
Mean	1 = 5.147 A	Mean 1 = 5.147 A	BONANZA
Mean	2 = 4.790 ABCDE	Mean 28 = 5.030 AB	SOUTHEAST
Mean	3 = 3.753 HIJ	Mean 11 = 4.933 ABC	KY-31
Mean	4 = 4.260 CDFGHI	Mean 20 = 4.920 ABC	REBEL II
Mean	5 = 4.087 EFGHI	Mean 9 = 4.840 ABCD	GRANDE
Mean	6 = 3.717 HIJ	Mean 8 = 4.837 ABCD	GA 98-D5
Mean	7 = 4.583 ABCDEFG	Mean 2 = 4.790 ABCDE	BONSAI
Mean	8 = 4.837 ABCD	Mean 29 = 4.683 ABCDEF	SR 8200
Mean	9 = 4.840 ABCD	Mean 7 = 4.583 ABCDEFG	FALCON
Mean	10 = 3.957 GHI	Mean 30 = 4.413 BCDFGH	TOMAHAWK
Mean	11 = 4.933 ABC	Mean 17 = 4.320 BCDFGHI	PICK ZMG
Mean	12 = 3.997 FGHI	Mean 4 = 4.260 CDFGHI	CREWCUT
Mean	13 = 3.823 HIJ	Mean 27 = 4.183 DEFGHI	SILVERADO
Mean	14 = 3.663 IJ	Mean 21 = 4.133 DEFGHI	RENEGADE
Mean	15 = 3.710 HIJ	Mean 5 = 4.087 EFGHI	CROSSFIRE II
Mean	16 = 3.200 J	Mean 32 = 4.017 FGHI	WRANGLER
Mean	17 = 4.320 BCDFGHI	Mean 19 = 4.007 FGHI	REBEL JR
Mean	18 = 3.810 HIJ	Mean 12 = 3.997 FGHI	LTP-7801 ✓
Mean	19 = 4.007 FGHI	Mean 24 = 3.980 FGHI	SM4
Mean	20 = 4.920 ABC	Mean 10 = 3.957 GHI	GRANDE II
Mean	21 = 4.133 DFGHI	Mean 25 = 3.937 GHI	SHENADOAH II
Mean	22 = 3.817 HIJ	Mean 26 = 3.873 GHIJ	SHORTSTOP
Mean	23 = 3.663 IJ	Mean 13 = 3.823 HIJ	MINI-MUSTANG
Mean	24 = 3.980 FGHI	Mean 22 = 3.817 HIJ	DOL
Mean	25 = 3.937 GHI	Mean 18 = 3.810 HIJ	PICK 00-A YA
Mean	26 = 3.873 GHIJ	Mean 3 = 3.753 HIJ	CAYENNE
Mean	27 = 4.183 DFGHI	Mean 31 = 3.740 HIJ	WATCHDOG
Mean	28 = 5.030 AB	Mean 6 = 3.717 HIJ	DYNASTY
Mean	29 = 4.683 ABCDEF	Mean 15 = 3.710 HIJ	PICK OD3
Mean	30 = 4.413 BCDFGH	Mean 14 = 3.663 IJ	MUSTANG 3 ✓
Mean	31 = 3.740 HIJ	Mean 23 = 3.663 IJ	L1Z ✓
Mean	32 = 4.017 FGHI	Mean 16 = 3.200 J	PICK TF H-97

#200400284

Data File : 03TFPVP

Title : 2003 Tall Fescue PVP trial - 2003 year data

Case Range : 97 - 128

Variable 7 : Flag leaf height (cm)

Function : RANGE

Error Mean Square = 51.46

Error Degrees of Freedom = 62

No. of observations to calculate a mean = 3

Least Significant Difference Test

LSD value = 11.71 at alpha = 0.050

	Original Order		Ranked Order		LINE
Mean	1 = 79.16	DEFG	Mean 11 = 94.72	A	KY-31
Mean	2 = 75.35	EFGH	Mean 28 = 93.33	AB	SOUTHEAST
Mean	3 = 61.23	IJ	Mean 7 = 92.24	ABC	FALCON
Mean	4 = 74.28	EFGH	Mean 20 = 89.03	ABCD	REBEL II
Mean	5 = 65.05	HIJ	Mean 8 = 84.72	ABCDB	GA 98-D5
Mean	6 = 72.22	FGHI	Mean 9 = 81.86	BCDEF	GRANDE
Mean	7 = 92.24	ABC	Mean 29 = 81.33	CDEF	SR 8200
Mean	8 = 84.72	ABCDE	Mean 1 = 79.16	DEFG	BONANZA
Mean	9 = 81.86	BCDEF	Mean 21 = 79.16	DEFG	RENEGADE
Mean	10 = 71.51	FGHIJ	Mean 2 = 75.35	EFGH	BONSAI
Mean	11 = 94.72	A	Mean 4 = 74.28	EFGH	CREWCUT
Mean	12 = 68.43	GHIJ	Mean 26 = 73.52	EFGH	SHORTSTOP
Mean	13 = 65.80	HIJ	Mean 27 = 73.42	EFGH	SILVERADO
Mean	14 = 71.02	FGHIJ	Mean 32 = 72.66	FGHI	WRANGLER
Mean	15 = 67.16	HIJ	Mean 18 = 72.60	FGHI	PICK 00-A FA
Mean	16 = 66.84	HIJ	Mean 6 = 72.22	FGHI	DYNASTY
Mean	17 = 66.13	HIJ	Mean 10 = 71.51	FGHIJ	GRANDE II
Mean	18 = 72.60	FGHI	Mean 14 = 71.02	FGHIJ	MUSTANG 3 ✓
Mean	19 = 70.34	FGHIJ	Mean 19 = 70.34	FGHIJ	REBEL JR
Mean	20 = 89.03	ABCD	Mean 12 = 68.43	GHIJ	LTP-7801 ✓
Mean	21 = 79.16	DEFG	Mean 30 = 68.28	GHIJ	TOMAHAWK
Mean	22 = 65.35	HIJ	Mean 23 = 67.80	GHIJ	L1Z ✓
Mean	23 = 67.80	GHIJ	Mean 15 = 67.16	HIJ	PICK OD3 = Blackwatch
Mean	24 = 65.32	HIJ	Mean 16 = 66.84	HIJ	PICK TF H-97
Mean	25 = 59.92	J	Mean 17 = 66.13	HIJ	PICK ZMG
Mean	26 = 73.52	EFGH	Mean 13 = 65.80	HIJ	MINI-MUSTANG
Mean	27 = 73.42	EFGH	Mean 22 = 65.35	HIJ	DOL = Guardian 21
Mean	28 = 93.33	AB	Mean 24 = 65.32	HIJ	SM4
Mean	29 = 81.33	CDEF	Mean 5 = 65.05	HIJ	CROSSFIRE II
Mean	30 = 68.28	GHIJ	Mean 31 = 61.71	IJ	WATCHDOG
Mean	31 = 61.71	IJ	Mean 3 = 61.23	IJ	CAYENNE
Mean	32 = 72.66	FGHI	Mean 25 = 59.92	J	SHENDADOAH II

#200400284

Data File : 02TFPVP
 Title : 2002 Tall Fescue

Case Range : 97 - 128
 Variable 23 : Tiller leaf length (cm)
 Function : RANGE

Error Mean Square = 1.827
 Error Degrees of Freedom = 62
 No. of observations to calculate a mean = 3

Least Significant Difference Test
 LSD value = 2.206 at alpha = 0.050

	Original Order		Ranked Order	LINE
Mean 1 =	20.50 AB	Mean	28 = 21.84 A	SOUTHEAST
Mean 2 =	17.54 DEFG	Mean	8 = 21.44 A	GA 98-D5
Mean 3 =	13.22 MN	Mean	11 = 21.27 A	KY-31
Mean 4 =	14.61 IJKLMN	Mean	20 = 20.61 AB	REBEL II
Mean 5 =	16.72 EFGHI	Mean	1 = 20.50 AB	BONANZA
Mean 6 =	14.43 JKLMN	Mean	7 = 20.28 ABC	FALCON
Mean 7 =	20.28 ABC	Mean	9 = 18.96 BCD	GRANDE
Mean 8 =	21.44 A	Mean	21 = 18.71 BCDE	RENEGADE
Mean 9 =	18.96 BCD	Mean	29 = 18.16 CDEF	SR 8200
Mean 10 =	16.24 FGHIJ	Mean	2 = 17.54 DEFG	BONSAI
Mean 11 =	21.27 A	Mean	30 = 17.52 DEFG	TOMAHAWK
Mean 12 =	13.71 LMN	Mean	26 = 17.17 DEFGH	SHORTSTOP
Mean 13 =	16.45 FGHIJ	Mean	19 = 17.16 DEFGH	REBEL JR
Mean 14 =	15.59 GHIJKL	Mean	32 = 17.12 DEFGH	WRANGLER
Mean 15 =	13.95 KLMN	Mean	5 = 16.72 EFGHI	CROSSFIRE II
Mean 16 =	12.50 N	Mean	13 = 16.45 FGHIJ	MINI-MUSTANG
Mean 17 =	14.57 IJKMN	Mean	10 = 16.24 FGHIJ	GRANDE II
Mean 18 =	15.89 GHIJKL	Mean	27 = 16.15 FGHijk	SILVERADO
Mean 19 =	17.16 DEFGH	Mean	24 = 16.03 FGHijk	ROBERTS SM4
Mean 20 =	20.61 AB	Mean	18 = 15.89 GHijkl	PICK 00-A FA
Mean 21 =	18.71 BCDE	Mean	14 = 15.59 GHijkl	MUSTANG 3
Mean 22 =	12.91 N	Mean	25 = 15.29 HIJKLM	SHENADOAH II
Mean 23 =	12.95 N	Mean	4 = 14.61 IJKLMN	CREWCUT
Mean 24 =	16.03 FGHijk	Mean	17 = 14.57 IJKLMN	PICK ZMG
Mean 25 =	15.29 HIJKLM	Mean	6 = 14.43 JKLMN	DYNASTY
Mean 26 =	17.17 DEFgh	Mean	15 = 13.95 KLMN	PICK OD3
Mean 27 =	16.15 FGHIJK	Mean	12 = 13.71 LMN	LTP-7801 ✓
Mean 28 =	21.84 A	Mean	31 = 13.30 MN	WATCHDOG
Mean 29 =	18.16 CDEF	Mean	3 = 13.22 MN	CAYENNE
Mean 30 =	17.52 DEFG	Mean	23 = 12.95 N	ROBERTS L1Z ✓
Mean 31 =	13.30 MN	Mean	22 = 12.91 N	ROBERTS DOL ✓
Mean 32 =	17.12 DEFGH	Mean	16 = 12.50 N	PICK FT H-97

#200400284

Data File : 03TFPVP

Title : 2003 Tall Fescue PVP trial - 2003 year data

Case Range : 97 - 128

Variable 18 : Tiller leaf length (cm)

Function : RANGE

Error Mean Square = 10.75

Error Degrees of Freedom = 62

No. of observations to calculate a mean = 3

Least Significant Difference Test

LSD value = 5.351 at alpha = 0.050

	Original Order		Ranked Order		LINE
Mean	1 = 27.66 ABCDE	Mean	19 = 30.94 A		REBEL JR
Mean	2 = 24.78 BCDEPG	Mean	20 = 29.72 AB		REBEL II
Mean	3 = 24.32 CDEPG	Mean	10 = 29.64 ABC		GRANDE II
Mean	4 = 26.78 ABCDEF	Mean	27 = 29.17 ABC		SILVERADO
Mean	5 = 25.06 BCDEPG	Mean	6 = 28.50 ABC		DYNASTY
Mean	6 = 28.50 ABC	Mean	8 = 28.29 ABCD		GA 98-D5
Mean	7 = 28.09 ABCD	Mean	7 = 28.09 ABCD		FALCON
Mean	8 = 28.29 ABCD	Mean	1 = 27.66 ABCDE		BONANZA
Mean	9 = 25.89 ABCDEFG	Mean	26 = 27.25 ABCDEF		SHORTSTOP
Mean	10 = 29.64 ABC	Mean	18 = 26.86 ABCDEF		PICK 00-A FA
Mean	11 = 25.31 BCDEPG	Mean	4 = 26.78 ABCDEF		CREWCUT
Mean	12 = 25.95 ABCDEFG	Mean	16 = 26.70 ABCDEF		PICK TF H-97
Mean	13 = 22.71 EFG	Mean	21 = 26.38 ABCDEFG		RENEGADE
Mean	14 = 24.50 BCDEFG	Mean	24 = 26.31 ABCDEFG		ROBERTS SM4
Mean	15 = 21.27 G	Mean	12 = 25.95 ABCDEFG		LTP-7801 ✓
Mean	16 = 26.70 ABCDEF	Mean	9 = 25.89 ABCDEFG		GRANDE
Mean	17 = 22.49 EFG	Mean	11 = 25.31 BCDEFG		KY-31
Mean	18 = 26.86 ABCDEF	Mean	23 = 25.15 BCDEFG		ROBERTS L1ZV ✓
Mean	19 = 30.94 A	Mean	5 = 25.06 BCDEFG		CROSSFIRE II
Mean	20 = 29.72 AB	Mean	29 = 25.02 BCDEFG		SR 8200
Mean	21 = 26.38 ABCDEFG	Mean	25 = 24.91 BCDEFG		SHENADOAH II
Mean	22 = 24.82 BCDEPG	Mean	22 = 24.82 BCDEFG		ROBERTS DOL
Mean	23 = 25.15 BCDEPG	Mean	2 = 24.78 BCDEFG		BONSAI
Mean	24 = 26.31 ABCDEFG	Mean	28 = 24.75 BCDEFG		SOUTHEAST
Mean	25 = 24.91 BCDEFG	Mean	14 = 24.50 BCDEFG		MUSTANG 3
Mean	26 = 27.25 ABCDEF	Mean	3 = 24.32 CDEFG		CAYENNE
Mean	27 = 29.17 ABC	Mean	31 = 23.13 DEFG		WATCHDOG
Mean	28 = 24.75 BCDEFG	Mean	13 = 22.71 EFG		MINI-MUSTANG
Mean	29 = 25.02 BCDEFG	Mean	17 = 22.49 EFG		PICK ZMG
Mean	30 = 22.24 EFG	Mean	30 = 22.24 FG		TOMAHAWK
Mean	31 = 23.13 DEFG	Mean	15 = 21.27 G		PICK OD3
Mean	32 = 5.351 H	Mean	32 = 5.351 H		WRANGLER

#200400284

Data File : 03TFPVP

Title : 2003 Tall Fescue PVP trial - 2003 year data

Case Range : 97 - 128

Variable 17 : Tiller leaf width (mm)

Function : RANGE

Error Mean Square = 0.2040

Error Degrees of Freedom = 62

No. of observations to calculate a mean = 3

Least Significant Difference Test

LSD value = 0.7372 at alpha = 0.050

	Original Order		Ranked Order		LINE
Mean	1 = 5.443 ABCDEF		Mean 27 = 5.943 A		SILVERADO
Mean	2 = 4.313 H		Mean 10 = 5.847 A		GRANDE II
Mean	3 = 4.910 DEFGH		Mean 28 = 5.713 AB		SOUTHEAST
Mean	4 = 4.697 GH		Mean 6 = 5.667 ABC		DYNASTY
Mean	5 = 4.623 GH		Mean 8 = 5.527 ABCD		GA 98-D5
Mean	6 = 5.667 ABC		Mean 7 = 5.513 ABCD		FALCON
Mean	7 = 5.513 ABCD		Mean 19 = 5.477 ABCDE		REBEL JR
Mean	8 = 5.527 ABCD		Mean 1 = 5.443 ABCDEF		BONANZA
Mean	9 = 4.770 EFGH		Mean 16 = 5.240 ABCDEFG		PICK TF H-97
Mean	10 = 5.847 A		Mean 29 = 5.077 BCDEFG		SR 8200
Mean	11 = 4.930 CDEFGH		Mean 20 = 5.000 BCDEFGH		REBEL II
Mean	12 = 4.577 GH		Mean 31 = 4.943 CDEFGH		WATCHDOG
Mean	13 = 4.663 GH		Mean 11 = 4.930 CDEFGH		KY-31
Mean	14 = 4.573 GH		Mean 3 = 4.910 DEFHG		CAYENNE
Mean	15 = 4.263 H		Mean 18 = 4.883 DEFHG		PICK 00-A FA
Mean	16 = 5.240 ABCDEFG		Mean 26 = 4.823 DEFHG		SHORTSTOP
Mean	17 = 4.513 GH		Mean 23 = 4.793 DEFHG		ROBERTS L1Z ✓
Mean	18 = 4.883 DEFGH		Mean 9 = 4.770 EFGH		GRANDE
Mean	19 = 5.477 ABCDE		Mean 24 = 4.707 FGH		ROBERTS SM4
Mean	20 = 5.000 BCDEFGH		Mean 4 = 4.697 GH		CREWCUT
Mean	21 = 4.637 GH		Mean 13 = 4.663 GH		MINI-MUSTANG
Mean	22 = 4.510 GH		Mean 21 = 4.637 GH		RENEGADE
Mean	23 = 4.793 DEFGH		Mean 30 = 4.633 GH		TOMAHAWK
Mean	24 = 4.707 FGH		Mean 25 = 4.627 GH		SHENANDOAH II
Mean	25 = 4.627 GH		Mean 5 = 4.623 GH		CROSSFIRE II
Mean	26 = 4.823 DEFGH		Mean 12 = 4.577 GH		LTP-7801 ✓
Mean	27 = 5.943 A		Mean 14 = 4.573 GH		MUSTANG 3
Mean	28 = 5.713 AB		Mean 17 = 4.513 GH		PICK ZMG
Mean	29 = 5.077 BCDEFG		Mean 22 = 4.510 GH		ROBERTS DOL
Mean	30 = 4.633 GH		Mean 2 = 4.313 H		BONSAI
Mean	31 = 4.943 CDEFGH		Mean 15 = 4.263 H		PICK OD3
Mean	32 = 0.7370 I		Mean 32 = 0.7370 I		WRANGLER

#200400284

Data File : 02TFPVP
 Title : 2002 Tall Fescue

Case Range : 97 - 128
 Variable 20 : Tiller leaf width (mm)
 Function : RANGE

Error Mean Square = 0.1610
 Error Degrees of Freedom = 62
 No. of observations to calculate a mean = 3

Least Significant Difference Test
 LSD value = 0.6549 at alpha = 0.050

	Original Order		Ranked Order		LINE
Mean 1 =	3.950 BCDEFG	Mean	11 = 4.917 A		KY-31
Mean 2 =	3.383 GHIJKL	Mean	28 = 4.600 AB		SOUTHEAST
Mean 3 =	3.067 JKL	Mean	8 = 4.350 ABC		GA 98-D5
Mean 4 =	3.483 FGHIJKL	Mean	20 = 4.317 ABC		REBEL II
Mean 5 =	3.560 EFGHIJK	Mean	21 = 4.250 BCD		RENEGADE
Mean 6 =	3.633 DEFGHIJ	Mean	9 = 4.150 BCDE		GRANDE
Mean 7 =	4.017 BCDEFG	Mean	24 = 4.100 BCDEF		ROBERTS SM4
Mean 8 =	4.350 ABC	Mean	7 = 4.017 BCDEFG		FALCON
Mean 9 =	4.150 BCDE	Mean	27 = 3.983 BCDEFG		SILVERADO
Mean 10 =	3.283 HIJKL	Mean	32 = 3.967 BCDEFG		WRANGLER
Mean 11 =	4.917 A	Mean	1 = 3.950 BCDEFG		BONANZA
Mean 12 =	2.950 KL	Mean	15 = 3.933 CDEFGH		PICK OD3
Mean 13 =	3.600 DEFGHIJK	Mean	29 = 3.883 CDEFGH		SR 8200 ✓
Mean 14 =	3.750 CDEFGHI	Mean	14 = 3.750 CDEFGHI		MUSTANG 3 ✓
Mean 15 =	3.933 CDEFGH	Mean	17 = 3.717 CDEFGHIJ		PICK ZMG
Mean 16 =	3.133 IJKL	Mean	6 = 3.633 DEFHIJ		DYNASTY
Mean 17 =	3.717 CDEFGHIJ	Mean	30 = 3.633 DEFHIJ		TOMAHAWK
Mean 18 =	3.633 DEFHIJ	Mean	18 = 3.633 DEFHIJ		PICK 00-A FA
Mean 19 =	3.400 GHIJKL	Mean	31 = 3.603 DEFHIJK		WATCHDOG
Mean 20 =	4.317 ABC	Mean	13 = 3.600 DEFHIJK		MINI-MUSTANG
Mean 21 =	4.250 BCD	Mean	5 = 3.560 EFGHIJK		CROSSFIRE II
Mean 22 =	2.833 L	Mean	25 = 3.517 EFGHIJK		SHENADOAH II
Mean 23 =	3.367 GHIJKL	Mean	4 = 3.483 FGHIJKL		CREWCUT
Mean 24 =	4.100 BCDEF	Mean	26 = 3.433 GHIJKL		SHORTSTOP
Mean 25 =	3.517 EFGHIJK	Mean	19 = 3.400 GHIJKL		REBEL JR
Mean 26 =	3.433 GHIJKL	Mean	2 = 3.383 GHIJKL		BONSAI
Mean 27 =	3.983 BCDEFG	Mean	23 = 3.367 GHIJKL		ROBERTS L1Z ✓
Mean 28 =	4.600 AB	Mean	10 = 3.283 HIJKL		GRANDE II
Mean 29 =	3.883 CDEFGH	Mean	16 = 3.133 IJKL		PICK TF H-97
Mean 30 =	3.633 DEFHIJ	Mean	3 = 3.067 JKL		CAYENNE
Mean 31 =	3.603 DEFGHIJK	Mean	12 = 2.950 KL		LTP-7801 ✓
Mean 32 =	3.967 BCDEFG	Mean	22 = 2.833 L		ROBERTS DOL ✓

#200400284

Data File : 02TFPVP
 Title : 2002 Tall Fescue

Case Range : 97 - 128

Variable 10 : Leaf blade width-1=very coarse, 3=coarse, 5=ned, 7=fine, 9=very fine

Function : RANGE

Error Mean Square = 0.1500

Error Degrees of Freedom = 62

No. of observations to calculate a mean = 3

Least Significant Difference Test

LSD value = 0.6321 at alpha = 0.050

	Original Order		Ranked Order		LINE
Mean 1 =	3.203	L	Mean 3 =	5.350 A	CAYENNE
Mean 2 =	4.650 BCDE		Mean 23 =	5.117 AB	ROBERTS LIZ ✓
Mean 3 =	5.350 A		Mean 22 =	5.113 AB	ROBERTS DOL ✓
Mean 4 =	4.360 DEFG		Mean 16 =	5.020 ABC	PICK TF H-97
Mean 5 =	3.667 HIJKL		Mean 31 =	5.003 ABC	WATCHDOG
Mean 6 =	4.563 BCDEF		Mean 27 =	4.830 ABCD	SILVERADO
Mean 7 =	1.640 M		Mean 12 =	4.797 ABCD	LTP-7801 ✓
Mean 8 =	1.000 N		Mean 13 =	4.797 ABCD	MINI-MUSTANG
Mean 9 =	3.203 L		Mean 18 =	4.680 BCDE	PICK 00-A FA
Mean 10 =	4.103 EFGHI		Mean 26 =	4.680 BCDE	SHORTSTOP
Mean 11 =	1.000 N		Mean 17 =	4.680 BCDE	PICK ZMG
Mean 12 =	4.797 ABCD		Mean 2 =	4.650 BCDE	BONSAI
Mean 13 =	4.797 ABCD		Mean 6 =	4.563 BCDEF	DYNASTY
Mean 14 =	4.247 DEFGH		Mean 24 =	4.473 CDEFG	ROBERTS SM4
Mean 15 =	3.377 JKL		Mean 4 =	4.360 DEFG	CREWCUT
Mean 16 =	5.020 ABC		Mean 14 =	4.247 DEFGH	MUSTANG 3
Mean 17 =	4.680 BCDE		Mean 25 =	4.157 EFGHI	SHENADOAH II
Mean 18 =	4.680 BCDE		Mean 10 =	4.103 EFGHI	GRANDE II
Mean 19 =	3.957 FGHIJ		Mean 19 =	3.957 FGHIJ	REBEL Jr.
Mean 20 =	3.263 KL		Mean 30 =	3.873 GHijk	TOHAWHAK
Mean 21 =	3.527 IJKL		Mean 29 =	3.720 HIJKL	SR 8200
Mean 22 =	5.113 AB		Mean 5 =	3.667 HIJKL	CROSSFIRE II
Mean 23 =	5.117 AB		Mean 21 =	3.527 IJKL	RENEGADE
Mean 24 =	4.473 CDEFG		Mean 32 =	3.427 JKL	WRANGLER
Mean 25 =	4.157 EFGHI		Mean 15 =	3.377 JKL	PICK OD3
Mean 26 =	4.680 BCDE		Mean 20 =	3.263 KLL	REBEL II
Mean 27 =	4.830 ABCD		Mean 1 =	3.203 L	BONANAZA
Mean 28 =	1.000 N		Mean 9 =	3.203 L	GRANDE
Mean 29 =	3.720 HIJKL		Mean 7 =	1.640 M	FALCON
Mean 30 =	3.873 GHijk		Mean 28 =	1.000 N	SOUTHEAST
Mean 31 =	5.003 ABC		Mean 11 =	1.000 N	KY-31
Mean 32 =	3.427 JKL		Mean 8 =	1.000 N	FA 98-D5

Data File : 02TFPVP
 Title : 2002 Tall Fescue

Case Range : 97 - 128

Variable 12 : Panicle shape-1=nar tapering, 5=ovate, 7=oblong, 9=other
 Function : RANGE

Error Mean Square = 0.6190

Error Degrees of Freedom = 62

No. of observations to calculate a mean = 3

Least Significant Difference Test
 LSD value = 1.284 at alpha = 0.050

	Original Order		Ranked Order		LINE
Mean	1 = 6.033 ABCDE	Mean	20 = 6.400 A		REBEL II
Mean	2 = 5.233 ABCDEFG	Mean	29 = 6.307 AB		SR 8200
Mean	3 = 5.167 ABCDEFG	Mean	19 = 6.233 ABC		REBEL Jr.
Mean	4 = 5.187 ABCDEFG	Mean	8 = 6.167 ABCD		GA 98-D5
Mean	5 = 6.040 ABCDE	Mean	30 = 6.100 ABCD		TOMAHAWK
Mean	6 = 5.300 ABCDEFG	Mean	5 = 6.040 ABCDE		CROSSFIRE II
Mean	7 = 4.667 G	Mean	1 = 6.033 ABCDE		BONANZA
Mean	8 = 6.167 ABCD	Mean	14 = 6.000 ABCDE		MUSTANG 3
Mean	9 = 5.367 ABCDEFG	Mean	27 = 5.967 ABCDEF		SILVERADO
Mean	10 = 5.033 BCDEFG	Mean	12 = 5.900 ABCDEFG	LTP-7801 ✓	
Mean	11 = 5.667 ABCDEFG	Mean	24 = 5.900 ABCDEFG		ROBERTS SM4
Mean	12 = 5.900 ABCDEFG	Mean	26 = 5.800 ABCDEFG		SHORTSTOP
Mean	13 = 5.100 BCDEFG	Mean	11 = 5.667 ABCDEFG		KY-31
Mean	14 = 6.000 ABCDE	Mean	18 = 5.667 ABCDEFG		PICK 00-A FA
Mean	15 = 4.700 FG	Mean	17 = 5.633 ABCDEFG		PICK ZMG
Mean	16 = 5.133 ABCDEFG	Mean	9 = 5.367 ABCDEFG		GRANDE
Mean	17 = 5.633 ABCDEFG	Mean	28 = 5.333 ABCDEFG		SOUTHEAST
Mean	18 = 5.667 ABCDEFG	Mean	6 = 5.300 ABCDEFG		DYNASTY
Mean	19 = 6.233 ABC	Mean	21 = 5.267 ABCDEFG		RENEGADE
Mean	20 = 6.400 A	Mean	2 = 5.233 ABCDEFG		BONSAI
Mean	21 = 5.267 ABCDEFG	Mean	4 = 5.187 ABCDEFG		CREWCUT
Mean	22 = 5.033 BCDEFG	Mean	3 = 5.167 ABCDEFG		CAYENNE
Mean	23 = 4.637 G	Mean	16 = 5.133 ABCDEFG		PICK TF H-97
Mean	24 = 5.900 ABCDEFG	Mean	13 = 5.100 BCDEFG		MINI-MUSTANG
Mean	25 = 4.967 CDEFG	Mean	10 = 5.033 BCDEFG		GRANDE II
Mean	26 = 5.800 ABCDEFG	Mean	22 = 5.033 BCDEFG	ROBERTS DOL ✓	
Mean	27 = 5.967 ABCDEF	Mean	25 = 4.967 CDEFG		SHEANDOAH II
Mean	28 = 5.333 ABCDEFG	Mean	32 = 4.883 DEFG		WRANGLER
Mean	29 = 6.307 AB	Mean	31 = 4.800 EFG		WATCHDOG
Mean	30 = 6.100 ABCD	Mean	15 = 4.700 FG		PICK OD3
Mean	31 = 4.800 EFG	Mean	7 = 4.667 G		FALCON
Mean	32 = 4.883 DEFG	Mean	23 = 4.637 G	ROBERTS L1Z ✓	

#200400284

Data File : 03TFPVP

Title : 2003 Tall Fescue PVP trial - 2003 year data

Case Range : 97 - 128

Variable 15 : Panicle shape 1=narrow, 2=oblong, 9=other

Function : RANGE

Error Mean Square = 0.6870

Error Degrees of Freedom = 62

No. of observations to calculate a mean = 3

Least Significant Difference Test

LSD value = 1.353 at alpha = 0.050

	Original Order		Ranked Order		LINE
Mean	1 = 6.043 ABC	Mean	10 = 7.000 A		GRANDE II
Mean	2 = 5.520 BCDE	Mean	31 = 6.333 AB		WATCHDOG
Mean	3 = 5.250 BCDE	Mean	19 = 6.073 ABC		REBEL JR
Mean	4 = 5.320 BCDE	Mean	1 = 6.043 ABC		BONANZA
Mean	5 = 4.273 E	Mean	18 = 5.897 ABC		PICK 00-A FA
Mean	6 = 5.870 ABC	Mean	6 = 5.870 ABC		DYNASTY
Mean	7 = 4.477 DE	Mean	25 = 5.810 ABCD		SHEANADOAH II
Mean	8 = 4.913 CDE	Mean	12 = 5.780 ABCD		LTP-7801 ✓
Mean	9 = 4.913 CDE	Mean	27 = 5.753 ABCD		SILVERADO
Mean	10 = 7.000 A	Mean	24 = 5.723 ABCD		ROBERTS SM4
Mean	11 = 5.580 BCDE	Mean	20 = 5.723 ABCD		REBEL II
Mean	12 = 5.780 ABCD	Mean	16 = 5.697 ABCD		PICK TF H-97
Mean	13 = 5.057 BCDE	Mean	21 = 5.637 BCD		RENEGADE
Mean	14 = 5.550 BCDE	Mean	26 = 5.637 BCD		SHORTSTOP
Mean	15 = 5.117 BCDE	Mean	29 = 5.580 BCDE		SR 8200
Mean	16 = 5.697 ABCD	Mean	11 = 5.580 BCDE		KY-31
Mean	17 = 5.317 BCDE	Mean	14 = 5.550 BCDE		MUSTANG 3
Mean	18 = 5.897 ABC	Mean	2 = 5.520 BCDE		BONSAI
Mean	19 = 6.073 ABC	Mean	23 = 5.347 BCDE		ROBERTS L1Z ✓
Mean	20 = 5.723 ABCD	Mean	4 = 5.320 BCDE		CREWCUT
Mean	21 = 5.637 BCD	Mean	17 = 5.317 BCDE		PICK ZMG
Mean	22 = 4.973 CDE	Mean	3 = 5.250 BCDE		CAYENNE
Mean	23 = 5.347 BCDE	Mean	30 = 5.207 BCDE		TOMAHAWK
Mean	24 = 5.723 ABCD	Mean	15 = 5.117 BCDE		PICK OD3
Mean	25 = 5.810 ABCD	Mean	28 = 5.060 BCDE		SOUTHEAST
Mean	26 = 5.637 BCD	Mean	13 = 5.057 BCDE		MINI-MUSTANG
Mean	27 = 5.753 ABCD	Mean	22 = 4.973 CDE		ROBERTS DOL
Mean	28 = 5.060 BCDE	Mean	9 = 4.913 CDE		GRANDE
Mean	29 = 5.580 BCDE	Mean	8 = 4.913 CDE		GA 98-D5
Mean	30 = 5.207 BCDE	Mean	7 = 4.477 DE		FALCON
Mean	31 = 6.333 AB	Mean	5 = 4.273 E		CROSSFIRE II
Mean	32 = 1.353 F	Mean	32 = 1.353 F		WRANGLER

#200400284

Data File : 02TFPVP
 Title : 2002 Tall Fescue

Case Range : 97 - 128
 Variable 18 : Panicle length (cm)
 Function : RANGE

Error Mean Square = 1.636
 Error Degrees of Freedom = 62
 No. of observations to calculate a mean = 3

Least Significant Difference Test
 LSD value = 2.088 at alpha = 0.050

	Original Order		Ranked Order	LINE
Mean	1 = 24.47 BC		Mean 28 = 27.88 A	SOUTHEAST
Mean	2 = 22.60 CDEF		Mean 11 = 27.77 A	KY-31
Mean	3 = 16.04 QR		Mean 8 = 26.54 AB	GA 98-D5
Mean	4 = 20.04 GHIJKL		Mean 1 = 24.47 BC	BONANZA
Mean	5 = 21.31 EFGHIJ		Mean 7 = 24.08 CD	FALCON
Mean	6 = 17.76 NOPQR		Mean 20 = 23.25 CDE	REBEL II
Mean	7 = 24.08 CD		Mean 2 = 22.60 CDEF	BONSAI
Mean	8 = 26.54 AB		Mean 21 = 22.12 DEFG	RENEGADE
Mean	9 = 21.62 EFGH		Mean 9 = 21.62 EFGH	GRANDE
Mean	10 = 19.71 HIJKLMNOP		Mean 19 = 21.55 EFGHI	REBEL JR
Mean	11 = 27.77 A		Mean 29 = 21.47 EFGHI	SR 8200
Mean	12 = 18.03 MNOPQ		Mean 5 = 21.31 EFGHIJ	CROSSFIRE II
Mean	13 = 19.48 IJKLMNO		Mean 30 = 21.10 FGHIJK	TOMAHAWK
Mean	14 = 19.30 JKLMNO		Mean 25 = 20.61 FGHIJKL	SHEANDOAH II
Mean	15 = 17.76 NOPQR		Mean 32 = 20.33 GHIJKL	WRANGLER
Mean	16 = 15.81 R		Mean 26 = 20.30 GHIJKL	SHORTSTOP
Mean	17 = 18.21 MNOP		Mean 4 = 20.04 GHIJKL	CREWCUT
Mean	18 = 19.05 KLMNO		Mean 10 = 19.71 HIJKLMNOP	GRANDE II
Mean	19 = 21.55 EFGHI		Mean 13 = 19.48 IJKLMNO	MINI-MUSTANG
Mean	20 = 23.25 CDE		Mean 14 = 19.30 JKLMNO	MUSTANG 3
Mean	21 = 22.12 DEFG		Mean 27 = 19.08 KLMNO	SILVRAODO
Mean	22 = 16.17 PQR		Mean 18 = 19.05 KLMNO	PICK 00-A FA
Mean	23 = 16.88 PQR		Mean 24 = 19.00 LMNO	ROBERTS SM4
Mean	24 = 19.00 LMNO		Mean 17 = 18.21 MNOP	PICK ZMG
Mean	25 = 20.61 FGHIJKL		Mean 12 = 18.03 MNOPQ	LTP-7801✓
Mean	26 = 20.30 GHIJKL		Mean 15 = 17.76 NOPQR	PICK OD3
Mean	27 = 19.08 KLMNO		Mean 6 = 17.76 NOPQR	DYNASTY
Mean	28 = 27.88 A		Mean 31 = 17.54 OPQR	WATCHDOG
Mean	29 = 21.47 EFGHI		Mean 23 = 16.88 PQR	ROBERTS L1Z✓
Mean	30 = 21.10 FGHIJK		Mean 22 = 16.17 PQR	ROBERTS DOL✓
Mean	31 = 17.54 OPQR		Mean 3 = 16.04 QR	CAYENNE
Mean	32 = 20.33 GHIJKL		Mean 16 = 15.81 R	PICK TF H-97

#200400284

Data File : 03TFPVP

Title : 2003 Tall Fescue PVP trial - 2003 year data

Case Range : 97 - 128

Variable 6 : PANICLE LENGTH (cm)

Function : RANGE

$$\frac{2(\text{EMS})}{100} = \text{CV} ?$$

Error Mean Square = 3.914

Error Degrees of Freedom = 62

No. of observations to calculate a mean = 3

Least Significant Difference Test

LSD value = 3.229 at alpha = 0.050

	Original Order		Ranked Order	LINE
Mean 1 =	36.34 ABCD		Mean 11 = 37.81 A	KY-31
Mean 2 =	31.01 FGHIJ		Mean 28 = 36.84 AB	SOUTHEAST
Mean 3 =	24.07 QR		Mean 20 = 36.50 ABC	REBEL II
Mean 4 =	32.71 EFGH		Mean 1 = 36.34 ABCD	BONANZA
Mean 5 =	28.93 IJKLMNO		Mean 8 = 35.17 ABCDE	GA 98-D5
Mean 6 =	27.15 LMNOPQ		Mean 7 = 34.23 BCDEF	FALCON
Mean 7 =	34.23 BCDEF		Mean 9 = 33.38 CDEFG	GRANDE
Mean 8 =	35.17 ABCDE		Mean 29 = 33.22 DEFG	SR 8200
Mean 9 =	33.38 CDEFG		Mean 4 = 32.71 EFGH	CREWCUT
Mean 10 =	29.68 HIJKL		Mean 19 = 31.58 FGHI	REBEL JR
Mean 11 =	37.81 A		Mean 2 = 31.01 FGHIJ	BONSAI
Mean 12 =	26.81 MNOPQR		Mean 21 = 30.92 GHIJ	RENEGADE
Mean 13 =	28.35 JKLMNOP		Mean 27 = 30.56 GHIJK	SILVERADO
Mean 14 =	27.52 KLMNOP		Mean 30 = 30.43 GHIJK	TOMAHAWK
Mean 15 =	26.36 NOPQR		Mean 17 = 30.29 GHIJKL	PICK ZMG
Mean 16 =	23.92 R		Mean 10 = 29.68 HIJKL	GRANDE II
Mean 17 =	30.29 GHijkl		Mean 25 = 29.58 HIJKLMN	SHERNAOAH II
Mean 18 =	29.31 IJKLMNO		Mean 18 = 29.31 IJKLMNO	PICK 00-A FA
Mean 19 =	31.58 FGHI		Mean 26 = 29.10 IJKLMNO	SHORTSTOP
Mean 20 =	36.50 ABC		Mean 5 = 28.93 IJKLMNO	CROSSPIRE II
Mean 21 =	30.92 GHIJ		Mean 24 = 28.65 IJKLMNOP	SM4
Mean 22 =	25.53 PQR		Mean 13 = 28.35 JKLMNOP	MINI-MUSTANG
Mean 23 =	26.13 OPQR		Mean 32 = 27.99 JKLMNOP	WRANGLER
Mean 24 =	28.65 IJKLMNOP		Mean 14 = 27.52 KLMNOP	MUSTANG 3
Mean 25 =	29.58 HIJKLMN		Mean 6 = 27.15 LMNOPQ	DYNASTY
Mean 26 =	29.10 IJKLMNO		Mean 31 = 26.95 MNOPQR	WATCHDOG
Mean 27 =	30.56 GHijk		Mean 12 = 26.81 MNOPQR	LTP-7801 ✓
Mean 28 =	36.84 AB		Mean 15 = 26.36 NOPQR	PICK OD3
Mean 29 =	33.22 DEFG		Mean 23 = 26.13 OPQR	L1Z ✓
Mean 30 =	30.43 GHIJK		Mean 22 = 25.53 PQR	DOL
Mean 31 =	26.95 MNOPQR		Mean 3 = 24.07 QR	CAYENNE
Mean 32 =	27.99 JKLMNOP		Mean 16 = 23.92 R	PICK TF H-97

#200400284

Data File : 02TFPVP

Title : 2002 Tall Fescue

Case Range : 97 - 128

Variable 13 : Panicle type-1=compact (appressed), 5=interm, 7=open, 9=other
Function : RANGE

Error Mean Square = 1.183

Error Degrees of Freedom = 62

No. of observations to calculate a mean = 3

Least Significant Difference Test

LSD value = 1.775 at alpha = 0.050

	Original Order		Ranked Order		LINE
Mean	1 =	3.400	C	Mean	SILVERADO
Mean	2 =	3.367	C	Mean	SR 8200
Mean	3 =	3.867	ABC	Mean	RENEGADE
Mean	4 =	2.823	C	Mean	TOMAHAWK
Mean	5 =	3.467	BC	Mean	DYNASTY
Mean	6 =	4.200	ABC	Mean	PICK ZMG
Mean	7 =	3.667	BC	Mean	MINI-MUSTANG
Mean	8 =	3.133	C	Mean	REBEL Jr.
Mean	9 =	3.400	C	Mean	LTP-7801✓
Mean	10 =	3.733	ABC	Mean	PICK TF H-97
Mean	11 =	3.500	BC	Mean	REBEL II
Mean	12 =	4.033	ABC	Mean	ROBERTS DOL ✓
Mean	13 =	4.133	ABC	Mean	CAYENNE
Mean	14 =	2.967	C	Mean	GRANDE II
Mean	15 =	2.933	C	Mean	FALCON
Mean	16 =	4.000	ABC	Mean	PICK 00-A FA
Mean	17 =	4.133	ABC	Mean	WRANGLER
Mean	18 =	3.667	BC	Mean	ROBERTS L1Z✓
Mean	19 =	4.100	ABC	Mean	SHORTSTOP
Mean	20 =	3.967	ABC	Mean	KY-31
Mean	21 =	4.500	ABC	Mean	CROSSFIRE II
Mean	22 =	3.933	ABC	Mean	SOUTHEAST
Mean	23 =	3.577	BC	Mean	GRANDE
Mean	24 =	3.233	C	Mean	BONANZA
Mean	25 =	3.267	C	Mean	BONASI
Mean	26 =	3.533	BC	Mean	SHENADOAH II
Mean	27 =	5.467	A	Mean	ROBERTS SM4
Mean	28 =	3.400	C	Mean	GA 98-D5
Mean	29 =	5.177	AB	Mean	WATCHDOG
Mean	30 =	4.300	ABC	Mean	MUSTANG 3
Mean	31 =	3.100	C	Mean	PICK OD3
Mean	32 =	3.593	BC	Mean	CREWCUT

#200400284

Data File : 03TFPPV

Title : 2003 Tall Fescue PVP trial - 2003 year data

Case Range : 97 - 128

Variable 16 : Panicle type 1=compact, 5=intermediate, 7=open, 9=other

Function : RANGE

Error Mean Square = 0.6370

Error Degrees of Freedom = 62

No. of observations to calculate a mean = 3

Least Significant Difference Test

LSD value = 1.303 at alpha = 0.050

	Original Order		Ranked Order		LINE
Mean	1 = 4.187	CDEF	Mean	17 = 5.637	A
Mean	2 = 3.640	BFG	Mean	26 = 5.493	AB
Mean	3 = 3.960	DEFG	Mean	19 = 5.463	ABC
Mean	4 = 4.247	BCDEF	Mean	18 = 5.000	ABCD
Mean	5 = 2.857	G	Mean	15 = 5.000	ABCD
Mean	6 = 4.537	ABCDEF	Mean	10 = 5.000	ABCD
Mean	7 = 3.607	BFG	Mean	31 = 5.000	ABCD
Mean	8 = 4.247	BCDEF	Mean	27 = 4.943	ABCD
Mean	9 = 3.347	FG	Mean	25 = 4.650	ABCDE
Mean	10 = 5.000	ABCD	Mean	23 = 4.567	ABCDEF
Mean	11 = 4.333	BCDEF	Mean	30 = 4.547	ABCDEF
Mean	12 = 4.480	ABCDEF	Mean	6 = 4.537	ABCDEF
Mean	13 = 3.897	DEFG	Mean	12 = 4.480	ABCDEF
Mean	14 = 4.190	CDEF	Mean	16 = 4.393	ABCDEF
Mean	15 = 5.000	ABCD	Mean	21 = 4.393	ABCDEF
Mean	16 = 4.393	ABCDEF	Mean	24 = 4.333	BCDEF
Mean	17 = 5.637	A	Mean	11 = 4.333	BCDEF
Mean	18 = 5.000	ABCD	Mean	20 = 4.247	BCDEF
Mean	19 = 5.463	ABC	Mean	4 = 4.247	BCDEF
Mean	20 = 4.247	BCDEF	Mean	8 = 4.247	BCDEF
Mean	21 = 4.393	ABCDEF	Mean	14 = 4.190	CDEF
Mean	22 = 3.960	DEFG	Mean	1 = 4.187	CDEF
Mean	23 = 4.567	ABCDEF	Mean	29 = 4.160	DEF
Mean	24 = 4.333	BCDEF	Mean	3 = 3.960	DEFG
Mean	25 = 4.650	ABCDE	Mean	22 = 3.960	DEFG
Mean	26 = 5.493	AB	Mean	13 = 3.897	DEFG
Mean	27 = 4.943	ABCD	Mean	2 = 3.640	EFG
Mean	28 = 3.610	BFG	Mean	28 = 3.610	EFG
Mean	29 = 4.160	DEF	Mean	7 = 3.607	EFG
Mean	30 = 4.547	ABCDEF	Mean	9 = 3.347	FG
Mean	31 = 5.000	ABCD	Mean	5 = 2.857	G
Mean	32 = 1.303	H	Mean	32 = 1.303	H

#200400284

Data File : 02TFPPVP
 Title : 2002 Tall Fescue

Case Range : 97 - 128
 Variable 16 : Panicle orientation-1=nodding,5=middle,9=erect
 Function : RANGE

Error Mean Square = 0.7930
 Error Degrees of Freedom = 62
 No. of observations to calculate a mean = 3

Least Significant Difference Test
 LSD value = 1.453 at alpha = 0.050

	Original Order		Ranked Order		LINE
Mean 1 =	3.400	KLM	Mean 17 =	7.333 A	PICK ZMG
Mean 2 =	5.267	GHI	Mean 3 =	7.267 AB	CAYENNE
Mean 3 =	7.267	AB	Mean 22 =	7.133 ABC	ROBERTS DOL ✓
Mean 4 =	5.440	EFGHI	Mean 12 =	6.933 ABCD	LTP-7801 ✓
Mean 5 =	3.533	JKL	Mean 18 =	6.867 ABCDE	PICK 00-A FA
Mean 6 =	5.733	CDEFGHI	Mean 16 =	6.733 ABCDEF	PICK TF H-97
Mean 7 =	1.533	NO	Mean 10 =	6.133 ABCDEFG	GRANDE II
Mean 8 =	1.000	O	Mean 14 =	6.133 ABCDEFG	MUSTANG 3
Mean 9 =	2.667	LMN	Mean 31 =	5.867 BCDEFGH	WATCHDOG
Mean 10 =	6.133	ABCDEFG	Mean 23 =	5.733 CDEFGHI	ROBERTS L1Z ✓
Mean 11 =	1.000	O	Mean 6 =	5.733 CDEFGHI	DYNASTY
Mean 12 =	6.933	ABCD	Mean 29 =	5.667 DEFGHI	SR 8200
Mean 13 =	4.533	HJK	Mean 24 =	5.667 DEFGHI	ROBERTS SM4
Mean 14 =	6.133	ABCDEF	Mean 26 =	5.667 DEFGHI	SHORTSTOP
Mean 15 =	5.400	FGHI	Mean 4 =	5.440 EFGHI	CREWCUT
Mean 16 =	6.733	ABCDEF	Mean 15 =	5.400 FGHI	PICK OD3
Mean 17 =	7.333	A	Mean 2 =	5.267 GHI	BONSAI
Mean 18 =	6.867	ABCDE	Mean 27 =	5.133 GHI	SILVERADO
Mean 19 =	5.067	GHI	Mean 19 =	5.067 GHI	REBEL JR
Mean 20 =	1.867	NO	Mean 21 =	4.933 GHIJ	RENEGADE
Mean 21 =	4.933	GHIJ	Mean 25 =	4.867 GHIJ	SHENANDOAH II
Mean 22 =	7.133	ABC	Mean 13 =	4.533 HIJK	MINI-MUSTANG
Mean 23 =	5.733	CDEFGHI	Mean 30 =	4.400 IJK	TOMAHAWK
Mean 24 =	5.667	DEFGHI	Mean 5 =	3.533 JKL	CROSSFIRE II
Mean 25 =	4.867	GHIJ	Mean 1 =	3.400 KLM	BONANZA
Mean 26 =	5.667	DEFGHI	Mean 9 =	2.667 LMN	GRANDE
Mean 27 =	5.133	GHI	Mean 32 =	2.013 MNO	WRANGLER
Mean 28 =	1.100	O	Mean 20 =	1.867 NO	REBEL II
Mean 29 =	5.667	DEFGHI	Mean 7 =	1.533 NO	FALCON
Mean 30 =	4.400	IJK	Mean 28 =	1.100 O	SOUTHEAST
Mean 31 =	5.867	BCDEFGH	Mean 11 =	1.000 O	KY-31
Mean 32 =	2.013	MNO	Mean 8 =	1.000 O	GA 98-D5

#200400284

Data File : 03TFPVP

Title : 2003 Tall Fescue PVP trial - 2003 year data

Case Range : 97 - 128

Variable 14 : Panicle orientation 1 = nodding, 9 = erect

Function : RANGE

Error Mean Square = 4.266

Error Degrees of Freedom = 62

No. of observations to calculate a mean = 3

Least Significant Difference Test

LSD value = 3.371 at alpha = 0.050

	Original Order	Ranked Order	LINE
Mean	1 = 8.537 A	Mean 5 = 8.767 A	CROSSFIRE II
Mean	2 = 8.537 A	Mean 2 = 8.537 A	BONSAI
Mean	3 = 3.667 DEF GHI	Mean 1 = 8.537 A	BONANZA
Mean	4 = 4.477 CDEF GH	Mean 16 = 8.537 A	PICK TF H-97
Mean	5 = 8.767 A	Mean 15 = 8.187 A	PICK OD3
Mean	6 = 2.507 GHI	Mean 17 = 7.957 AB	PICK ZMG
Mean	7 = 1.580 HI	Mean 21 = 7.260 ABC	RENEGADE
Mean	8 = 2.393 GHI	Mean 22 = 6.800 ABCD	ROBERTS DOL
Mean	9 = 4.017 CDEF GHI	Mean 14 = 6.333 ABCDE	MUSTANG 3
Mean	10 = 1.000 I	Mean 24 = 6.103 ABCDEF	ROBERTS SM4
Mean	11 = 4.710 BCDEF GH	Mean 23 = 5.407 ABCDEFG	ROBERTS LIZ ✓
Mean	12 = 4.593 BCDEF GH	Mean 19 = 4.710 BCDEF GH	REBEL JR
Mean	13 = 4.130 CDEF GHI	Mean 11 = 4.710 BCDEF GH	KY-31
Mean	14 = 6.333 ABCDE	Mean 12 = 4.593 BCDEF GH	LTP-7801 ✓
Mean	15 = 8.187 A	Mean 4 = 4.477 CDEF GH	CREWCUT
Mean	16 = 8.537 A	Mean 13 = 4.130 CDEF GHI	MINI-MUSTANG
Mean	17 = 7.957 AB	Mean 9 = 4.017 CDEF GHI	GRANDE
Mean	18 = 2.393 GHI	Mean 25 = 4.013 CDEF GHI	SHERNADOAH II
Mean	19 = 4.710 BCDEF GH	Mean 28 = 3.900 CDEF GHI	SOUTHEAST
Mean	20 = 2.857 FGHI	Mean 3 = 3.667 DEF GHI	CAYENNE
Mean	21 = 7.260 ABC	Mean 30 = 3.620 DEF GHI	TOMAHAWK
Mean	22 = 6.800 ABCD	Mean 32 = 3.371 EFGHI	WRANGLER
Mean	23 = 5.407 ABCDEFG	Mean 20 = 2.857 EFGHI	REBEL II
Mean	24 = 6.103 ABCDEF	Mean 6 = 2.507 GHI	DYNASTY
Mean	25 = 4.013 CDEF GHI	Mean 18 = 2.393 GHI	PICK 00-A FA
Mean	26 = 1.000 I	Mean 8 = 2.393 GHI	GA 98-D5
Mean	27 = 1.000 I	Mean 29 = 1.927 HI	SR 8200
Mean	28 = 3.900 CDEF GHI	Mean 7 = 1.580 HI	FALCON
Mean	29 = 1.927 HI	Mean 31 = 1.400 HI	WATCHDOG
Mean	30 = 3.620 DEF GHI	Mean 10 = 1.000 I	GRANDE II
Mean	31 = 1.400 HI	Mean 27 = 1.000 I	SILVERADO
Mean	32 = 3.371 EFGHI	Mean 26 = 1.000 I	SHORTSTOP

#200400284

Data File : 02TFPVP
 Title : 2002 Tall Fescue

Case Range : 97 - 128
 Variable 8 : 1000 seed weight (g)
 Function : RANGE

Error Mean Square = 0.03000
 Error Degrees of Freedom = 62
 No. of observations to calculate a mean = 3

Least Significant Difference Test
 LSD value = 0.2827 at alpha = 0.050

	Original Order		Ranked Order		LINE
Mean	1 = 2.990	BCDE	Mean 11 = 3.300	A	KY-31
Mean	2 = 2.853	DEFGH	Mean 32 = 3.247	AB	WRANGLER
Mean	3 = 2.680	FGHI	Mean 20 = 3.190	ABC	REBEL II
Mean	4 = 2.747	DEFGHI	Mean 5 = 3.013	BCD	CROSSFIRE II
Mean	5 = 3.013	BCD	Mean 1 = 2.990	BCDE	BONANZA
Mean	6 = 2.927	CDEF	Mean 29 = 2.930	CDEF	SR 8200
Mean	7 = 2.877	DEFG	Mean 6 = 2.927	CDEF	DYNASTY
Mean	8 = 2.807	DEFGHI	Mean 10 = 2.910	CDEF	GRANDE II
Mean	9 = 2.623	GHI	Mean 17 = 2.910	CDEF	PICK ZMG
Mean	10 = 2.910	CDEF	Mean 7 = 2.877	DEFG	FALCON
Mean	11 = 3.300	A	Mean 28 = 2.867	DEFGH	SOUTHEAST
Mean	12 = 2.597	GHI	Mean 2 = 2.853	DEFGH	BONSAI
Mean	13 = 2.620	GHI	Mean 24 = 2.843	DEFGH	ROBERTS SM4
Mean	14 = 2.833	DEFGH	Mean 21 = 2.837	DEFGH	RENEGADE
Mean	15 = 2.737	DEFGHI	Mean 14 = 2.833	DEFGH	MUSTANG 3
Mean	16 = 2.667	FGHI	Mean 30 = 2.817	DEFGH	TOMAHAWK
Mean	17 = 2.910	CDEF	Mean 8 = 2.807	DEFGHI	GA 98-D5
Mean	18 = 2.770	DEFGHI	Mean 23 = 2.790	DEFGHI	ROBERTS L1Z ✓
Mean	19 = 2.783	DEFGHI	Mean 19 = 2.783	DEFGHI	REBEL Jr.
Mean	20 = 3.190	ABC	Mean 18 = 2.770	DEFGHI	PICK 00-A FA
Mean	21 = 2.837	DEFGH	Mean 4 = 2.747	DEFGHI	CREWCUT
Mean	22 = 2.530	I	Mean 15 = 2.737	DEFGHI	PICK OD3
Mean	23 = 2.790	DEFGHI	Mean 25 = 2.720	EFGHI	SHENADOAH II
Mean	24 = 2.843	DEFGH	Mean 26 = 2.707	FGHI	SHORTSTOP
Mean	25 = 2.720	EFGHI	Mean 27 = 2.693	FGHI	SILVERADO
Mean	26 = 2.707	FGHI	Mean 3 = 2.680	FGHI	CAYENNE
Mean	27 = 2.693	FGHI	Mean 16 = 2.667	FGHI	PICK TF H-97
Mean	28 = 2.867	DEFGH	Mean 9 = 2.623	GHI	GRANDE
Mean	29 = 2.930	CDEF	Mean 13 = 2.620	GHI	MINI-MUSTANG
Mean	30 = 2.817	DEFGH	Mean 12 = 2.597	GHI	LTP-7801✓
Mean	31 = 2.593	HI	Mean 31 = 2.593	HI	WATCHDOG
Mean	32 = 3.247	AB	Mean 22 = 2.530	I	ROBERTS DOL ✓

#200400284

Data File : 03TFPVP

Title : 2003 Tall Fescue PVP trial - 2003 year data

Case Range : 97 - 128

Variable 20 : True 1,000 seed wt. (g)

Function : RANGE

Error Mean Square = 0.07900

Error Degrees of Freedom = 62

No. of observations to calculate a mean = 3

Least Significant Difference Test

LSD value = 0.4587 at alpha = 0.050

	Original Order		Ranked Order		LINE
Mean	1 =	2.270	AB	Mean	4 = 2.540 A
Mean	2 =	2.270	AB	Mean	7 = 2.537 A
Mean	3 =	2.140	ABC	Mean	18 = 2.500 A
Mean	4 =	2.540	A	Mean	20 = 2.460 AB
Mean	5 =	2.357	AB	Mean	29 = 2.437 AB
Mean	6 =	2.183	AB	Mean	31 = 2.407 AB
Mean	7 =	2.537	A	Mean	27 = 2.363 AB
Mean	8 =	2.157	AB	Mean	5 = 2.357 AB
Mean	9 =	2.267	AB	Mean	23 = 2.353 AB
Mean	10 =	2.327	AB	Mean	24 = 2.347 AB
Mean	11 =	2.107	ABC	Mean	25 = 2.337 AB
Mean	12 =	2.017	BC	Mean	10 = 2.327 AB
Mean	13 =	2.023	BC	Mean	15 = 2.317 AB
Mean	14 =	2.187	AB	Mean	26 = 2.283 AB
Mean	15 =	2.317	AB	Mean	2 = 2.270 AB
Mean	16 =	2.203	AB	Mean	1 = 2.270 AB
Mean	17 =	2.203	AB	Mean	9 = 2.267 AB
Mean	18 =	2.500	A	Mean	21 = 2.220 AB
Mean	19 =	2.203	AB	Mean	16 = 2.203 AB
Mean	20 =	2.460	AB	Mean	28 = 2.203 AB
Mean	21 =	2.220	AB	Mean	19 = 2.203 AB
Mean	22 =	2.183	AB	Mean	17 = 2.203 AB
Mean	23 =	2.353	AB	Mean	14 = 2.187 AB
Mean	24 =	2.347	AB	Mean	6 = 2.183 AB
Mean	25 =	2.337	AB	Mean	22 = 2.183 AB
Mean	26 =	2.283	AB	Mean	8 = 2.157 AB
Mean	27 =	2.363	AB	Mean	3 = 2.140 ABC
Mean	28 =	2.203	AB	Mean	11 = 2.107 ABC
Mean	29 =	2.437	AB	Mean	13 = 2.023 BC
Mean	30 =	1.690	C	Mean	12 = 2.017 BC
Mean	31 =	2.407	AB	Mean	30 = 1.690 C
Mean	32 =	0.4594	D	Mean	32 = 0.4594 D

#200400284

Data File : 02TFPVP
 Title : 2002 Tall Fescue

Case Range : 97 - 128
 Variable 7 : Seed Length (mm) 20 seeds
 Function : RANGE

Error Mean Square = 0.07400
 Error Degrees of Freedom = 62
 No. of observations to calculate a mean = 3

Least Significant Difference Test
 LSD value = 0.4440 at alpha = 0.050

	Original Order		Ranked Order		LINE
Mean	1 = 6.573 AB		Mean 11 = 6.933 A		KY-31
Mean	2 = 6.120 CDEFGHIJ		Mean 1 = 6.573 AB		BONANZA
Mean	3 = 5.693 JKL		Mean 8 = 6.443 BC		GA 98-D5
Mean	4 = 6.390 BCD		Mean 4 = 6.390 BCD		CREWCUT
Mean	5 = 6.350 BCD		Mean 9 = 6.390 BCD		GRANDE
Mean	6 = 5.853 GHIJKL		Mean 5 = 6.350 BCD		CROSSFIRE II
Mean	7 = 6.333 BCDE		Mean 7 = 6.333 BCDE		FALCON
Mean	8 = 6.443 BC		Mean 29 = 6.307 BCDEF		SR 8200
Mean	9 = 6.390 BCD		Mean 13 = 6.293 BCDEFG		MINI-MUSTANG
Mean	10 = 5.957 DEFGHIJKL		Mean 20 = 6.250 BCDEFGH		REBEL II
Mean	11 = 6.933 A		Mean 32 = 6.173 BCDEFGHI		WRANGLER
Mean	12 = 5.713 JKL		Mean 2 = 6.120 CDEFGHIJ		BONSAI
Mean	13 = 6.293 BCDEFG		Mean 28 = 6.083 CDEFGHIJK		SOUTHEAST
Mean	14 = 5.857 GHIJKL		Mean 30 = 6.013 CDEFGHIJK		TOMAHAWK
Mean	15 = 5.677 JKL		Mean 18 = 5.997 DEFGBHIJK		PICK 00-A FA
Mean	16 = 5.827 HIJKL		Mean 26 = 5.983 DEFGBHIJKL		SHORTSTOP
Mean	17 = 5.973 DEFGBHIJKL		Mean 17 = 5.973 DEFGBHIJKL		PICK ZMG
Mean	18 = 5.997 DEFGBHIJK		Mean 10 = 5.957 DEFGBHIJKL		GRANDE II
Mean	19 = 5.743 IJKL		Mean 27 = 5.953 DEFGBHIJKL		SILVERADO
Mean	20 = 6.250 BCDEFGH		Mean 24 = 5.893 EFGHIJKL		ROBERTS SM4
Mean	21 = 5.740 IJKL		Mean 25 = 5.863 FGHIJKL		SHENANDOAH II
Mean	22 = 5.547 L		Mean 14 = 5.857 GHIJKL		MUSTANG 3
Mean	23 = 5.700 JKL		Mean 6 = 5.853 GHIJKL		DYNASTY
Mean	24 = 5.893 EFGHIJKL		Mean 16 = 5.827 HIJKL		PICK TF H-97
Mean	25 = 5.863 FGHIJKL		Mean 19 = 5.743 IJKL		REBEL Jr.
Mean	26 = 5.983 DEFGBHIJKL		Mean 21 = 5.740 IJKL		RENEGADE
Mean	27 = 5.953 DEFGBHIJKL		Mean 12 = 5.713 JKLL	LTP-7801✓	
Mean	28 = 6.083 CDEFGHIJK		Mean 23 = 5.700 JKLL	✓	ROBERTS L1Z✓
Mean	29 = 6.307 BCDEF		Mean 3 = 5.693 JKLL		CAYENNE
Mean	30 = 6.013 CDEFGHIJK		Mean 15 = 5.677 JKLL		PICK OD3
Mean	31 = 5.667 KL		Mean 31 = 5.667 KL		WATCHDOG
Mean	32 = 6.173 BCDEFGHI		Mean 22 = 5.547 L		ROBERTS DOL ✓

#200400284

Data File : 02TFPVP

Title : 2002 Tall Fescue

Case Range : 97 - 128

Variable 6 : 10 Seed width (mm)

Function : RANGE

Error Mean Square = 0.3240

Error Degrees of Freedom = 62

No. of observations to calculate a mean = 3

Least Significant Difference Test

LSD value = 0.9290 at alpha = 0.050

	Original Order		Ranked Order		LINE
Mean	1 = 15.40	BCDEF	Mean	32 = 16.69	A WRANGLER
Mean	2 = 15.59	BCDE	Mean	11 = 16.12	AB KY-31
Mean	3 = 14.43	GH	Mean	8 = 15.89	ABC GA 98-D5
Mean	4 = 14.89	DEFGH	Mean	20 = 15.73	BCD REBEL Jr.
Mean	5 = 15.40	BCDEF	Mean	28 = 15.60	BCDE SOUTHEAST
Mean	6 = 15.06	CDEFGH	Mean	2 = 15.59	BCDE BONSAI
Mean	7 = 15.35	BCDEFG	Mean	1 = 15.40	BCDEF BONANAZA
Mean	8 = 15.89	ABC	Mean	5 = 15.40	BCDEF CROSSFIRE II
Mean	9 = 15.07	CDEFGH	Mean	7 = 15.35	BCDEFG FALCON
Mean	10 = 14.91	DEFGH	Mean	14 = 15.23	BCDEFG MUSTANG 3
Mean	11 = 16.12	AB	Mean	13 = 15.19	CDEFGH MINI-MUSTANG
Mean	12 = 14.50	FGH	Mean	15 = 15.13	CDEFGH PICK OD3
Mean	13 = 15.19	CDEFGH	Mean	9 = 15.07	CDEFGH GRANDE
Mean	14 = 15.23	BCDEFG	Mean	6 = 15.06	CDEFGH DYNASTY
Mean	15 = 15.13	CDEFGH	Mean	18 = 15.00	CDEFGH PICK 00-A FA
Mean	16 = 14.75	EFGH	Mean	24 = 14.97	CDEFGH ROBERTS SM4
Mean	17 = 14.78	EFGH	Mean	30 = 14.91	DEFGH TOMAHAWK
Mean	18 = 15.00	CDEFGH	Mean	10 = 14.91	DEFGH GRANDE II
Mean	19 = 14.89	DEFGH	Mean	27 = 14.90	DEFGH SILVERADO
Mean	20 = 15.73	BCD	Mean	19 = 14.89	DEFGH REBEL Jr.
Mean	21 = 14.88	DEFGH	Mean	4 = 14.89	DEFGH CREWCUT
Mean	22 = 14.77	EFGH	Mean	21 = 14.88	DEFGH RENEGADE
Mean	23 = 14.60	FGH	Mean	29 = 14.86	DEFGH SR 8200
Mean	24 = 14.97	CDEFGH	Mean	17 = 14.78	EFGH PICK ZMG
Mean	25 = 14.65	FGH	Mean	22 = 14.77	EFGH ROBERTS DOL ✓
Mean	26 = 14.58	FGH	Mean	16 = 14.75	EFGH PICK TF H-97
Mean	27 = 14.90	DEFGH	Mean	25 = 14.65	FGH SHEANDOAH II
Mean	28 = 15.60	BCDE	Mean	23 = 14.60	FGH ROBERTS LIZ ✓
Mean	29 = 14.86	DEFGH	Mean	26 = 14.58	FGH SHORTSTOP
Mean	30 = 14.91	DEFGH	Mean	12 = 14.50	FGH LTP-7801 ✓
Mean	31 = 14.26	H	Mean	3 = 14.43	GH CAYENNE
Mean	32 = 16.69	A	Mean	31 = 14.26	H WATCHDOG

#200400284

Data File : 03TFPVP

Title : 2003 Tall Fescue PVP trial - 2003 year data

Case Range : 97 - 128

Variable 11 : 10 seed width (mm)

Function : RANGE

Error Mean Square = 0.8150

Error Degrees of Freedom = 62

No. of observations to calculate a mean = 3

Least Significant Difference Test

LSD value = 1.473 at alpha = 0.050

	Original Order		Ranked Order		LINE
Mean	1 = 15.18 AB	Mean	10 = 15.80 A		GRANDE II
Mean	2 = 15.03 AB	Mean	12 = 15.71 A		LTP-7801 ✓
Mean	3 = 15.07 AB	Mean	29 = 15.65 A		SR 8200
Mean	4 = 14.42 AB	Mean	26 = 15.39 AB		SHORTSTOP
Mean	5 = 15.01 AB	Mean	27 = 15.35 AB		SILVERADO
Mean	6 = 15.02 AB	Mean	8 = 15.30 AB		GA 98-D5
Mean	7 = 15.09 AB	Mean	1 = 15.18 AB		BONANZA
Mean	8 = 15.30 AB	Mean	30 = 15.12 AB		TOMAHAWK
Mean	9 = 14.60 AB	Mean	7 = 15.09 AB		FALCON
Mean	10 = 15.80 A	Mean	3 = 15.07 AB		CAYENNE
Mean	11 = 14.99 AB	Mean	2 = 15.03 AB		BONSAI
Mean	12 = 15.71 A	Mean	6 = 15.02 AB		DYNASTY
Mean	13 = 14.44 AB	Mean	5 = 15.01 AB		CROSSFIRE II
Mean	14 = 14.99 AB	Mean	14 = 14.99 AB		MUSTANG 3
Mean	15 = 14.08 B	Mean	11 = 14.99 AB		KY-31
Mean	16 = 14.53 AB	Mean	18 = 14.98 AB		PICK 00-A FA
Mean	17 = 13.95 B	Mean	24 = 14.89 AB		ROBERTS SM4
Mean	18 = 14.98 AB	Mean	20 = 14.84 AB		REBEL II
Mean	19 = 14.58 AB	Mean	28 = 14.83 AB		SOUTHEAST
Mean	20 = 14.84 AB	Mean	23 = 14.80 AB		ROBERTS L1Z ✓
Mean	21 = 14.01 B	Mean	22 = 14.76 AB		ROBERTS DOL
Mean	22 = 14.76 AB	Mean	9 = 14.60 AB		GRANDE
Mean	23 = 14.80 AB	Mean	19 = 14.58 AB		REBEL JR.
Mean	24 = 14.89 AB	Mean	16 = 14.53 AB		PICK TF H-97
Mean	25 = 14.09 B	Mean	31 = 14.52 AB		WATCHDOG
Mean	26 = 15.39 AB	Mean	13 = 14.44 AB		MINI-MUSTANG
Mean	27 = 15.35 AB	Mean	4 = 14.42 AB		CREWCUT
Mean	28 = 14.83 AB	Mean	25 = 14.09 B		SHENANDOAH II
Mean	29 = 15.65 A	Mean	15 = 14.08 B		PICK OD3
Mean	30 = 15.12 AB	Mean	21 = 14.01 B		RENEGADE
Mean	31 = 14.52 AB	Mean	17 = 13.95 B		PICK ZMG
Mean	32 = 1.473 C	Mean	32 = 1.473 C		WRANGLER

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FORM APPROVED - OMB No. 0581-0055

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE**EXHIBIT E**
STATEMENT OF THE BASIS OF OWNERSHIP

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). The information is held confidential until the certificate is issued (7 U.S.C. 2426).

1. NAME OF APPLICANT(S)	2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER	3. VARIETY NAME
Lebanon Seaboard Corporation and Rutgers University	LTP-7801	DaVinci
4. ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP, and Country)	5. TELEPHONE (Include area code)	6. FAX (Include area code)
P.O. Box 10 Huntsville, UT 84317 USA	(503) 580-7333	(801) 745-4610
7. PVPO NUMBER #200400284		

8. Does the applicant own all rights to the variety? Mark an "X" in the appropriate block. If no, please explain.

 YES NO

9. Is the applicant (individual or company) a U.S. national or a U.S. based company? If no, give name of country.

 YES NO10. Is the applicant the original owner? YES NO If no, please answer one of the following:a. If the original rights to variety were owned by individual(s), is (are) the original owner(s) a U.S. National(s)?
 YES NO If no, give name of countryb. If the original rights to variety were owned by a company(ies), is (are) the original owner(s) a U.S. based company?
 YES NO If no, give name of country

11. Additional explanation on ownership (Trace ownership from original breeder to current owner. Use the reverse for extra space if needed):

DaVinci was developed by Lebanon Seaboard Corporation using germplasm from Rutgers University.

PLEASE NOTE:

Plant variety protection can only be afforded to the owners (not licensees) who meet the following criteria:

1. If the rights to the variety are owned by the original breeder, that person must be a U.S. national, national of a UPOV member country, or national of a country which affords similar protection to nationals of the U.S. for the same genus and species.
2. If the rights to the variety are owned by the company which employed the original breeder(s), the company must be U.S. based, owned by nationals of a UPOV member country, or owned by nationals of a country which affords similar protection to nationals of the U.S. for the same genus and species.
3. If the applicant is an owner who is not the original owner, both the original owner and the applicant must meet one of the above criteria.

The original breeder/owner may be the individual or company who directed the final breeding. See Section 41(a)(2) of the Plant Variety Protection Act for definitions.

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11/07/07 WED 16:08 FSA SOL 504 5291

USDA AMS FVPO

Addendum

Form Approved OMB NO 0581-0055

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U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY
PLANT VARIETY PROTECTION OFFICE
BELTSVILLE, MD 20705

EXHIBIT F
DECLARATION REGARDING DEPOSIT

NAME OF OWNER (S)	ADDRESS (Street and No. or RD No., City, State, and Zip Code and Country)	TEMPORARY OR EXPERIMENTAL DESIGNATION
Lebanon Seaboard Corp and Rutgers University (ET/11/7/2007)	P.O. Box 10 Huntsville, UT 87317-0010	LTP-7801
NAME OF OWNER REPRESENTATIVE (S)	ADDRESS (Street and No. or RD No., City, State, and Zip Code and Country)	VARIETY NAME
Tim Ford	P.O. Box 10 Huntsville, UT 87317-0010	Da Vinci
		PIVPO NUMBER
		#200400284

I do hereby declare that during the life of the certificate a viable sample of propagating material of the subject variety will be deposited, and replenished as needed periodically, in a public repository in the United States in accordance with the regulations established by the Plant Variety Protection Office.

Tim Ford
Signature

11-7-07
Date